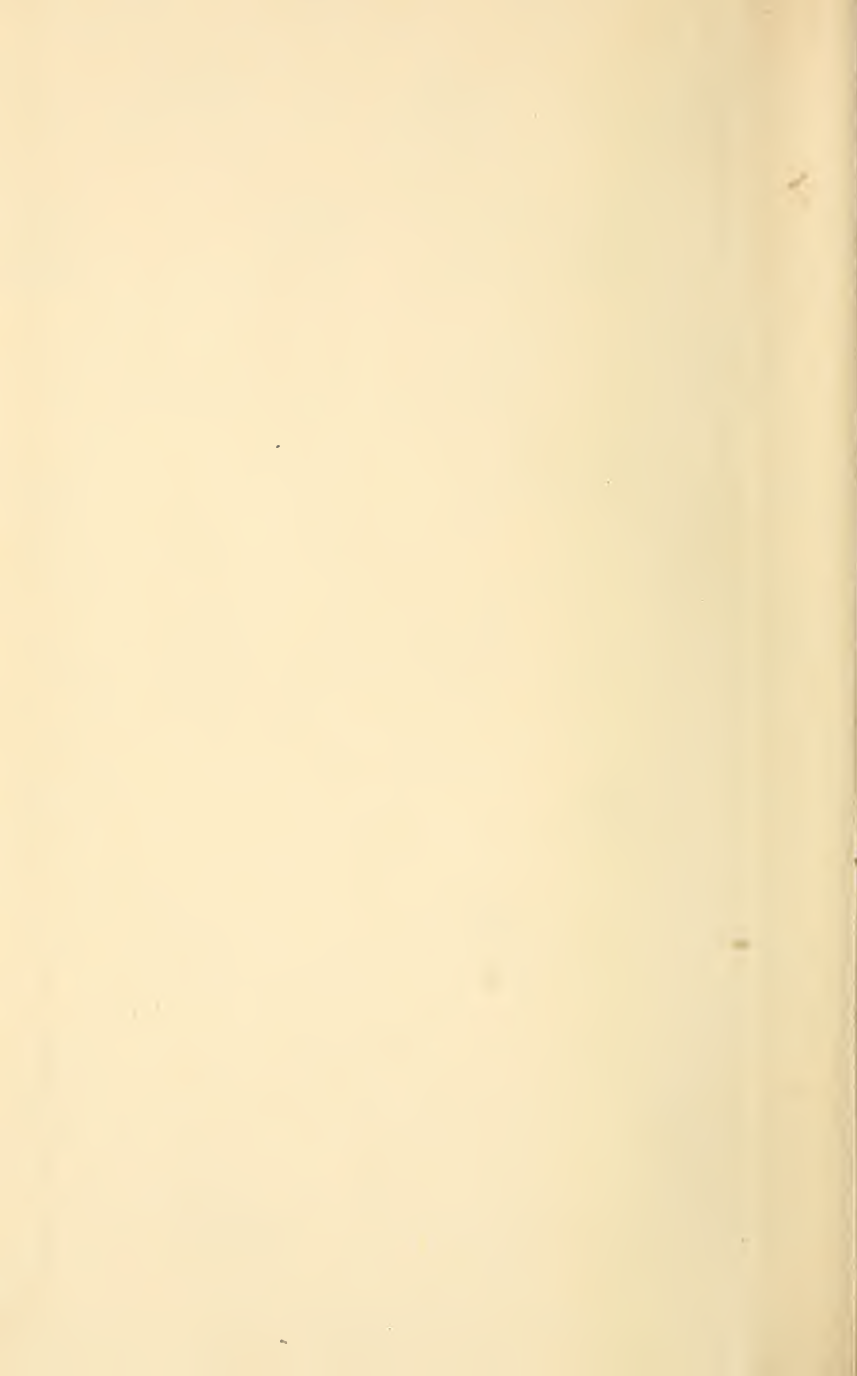


LIBRARY OF CONGRESS

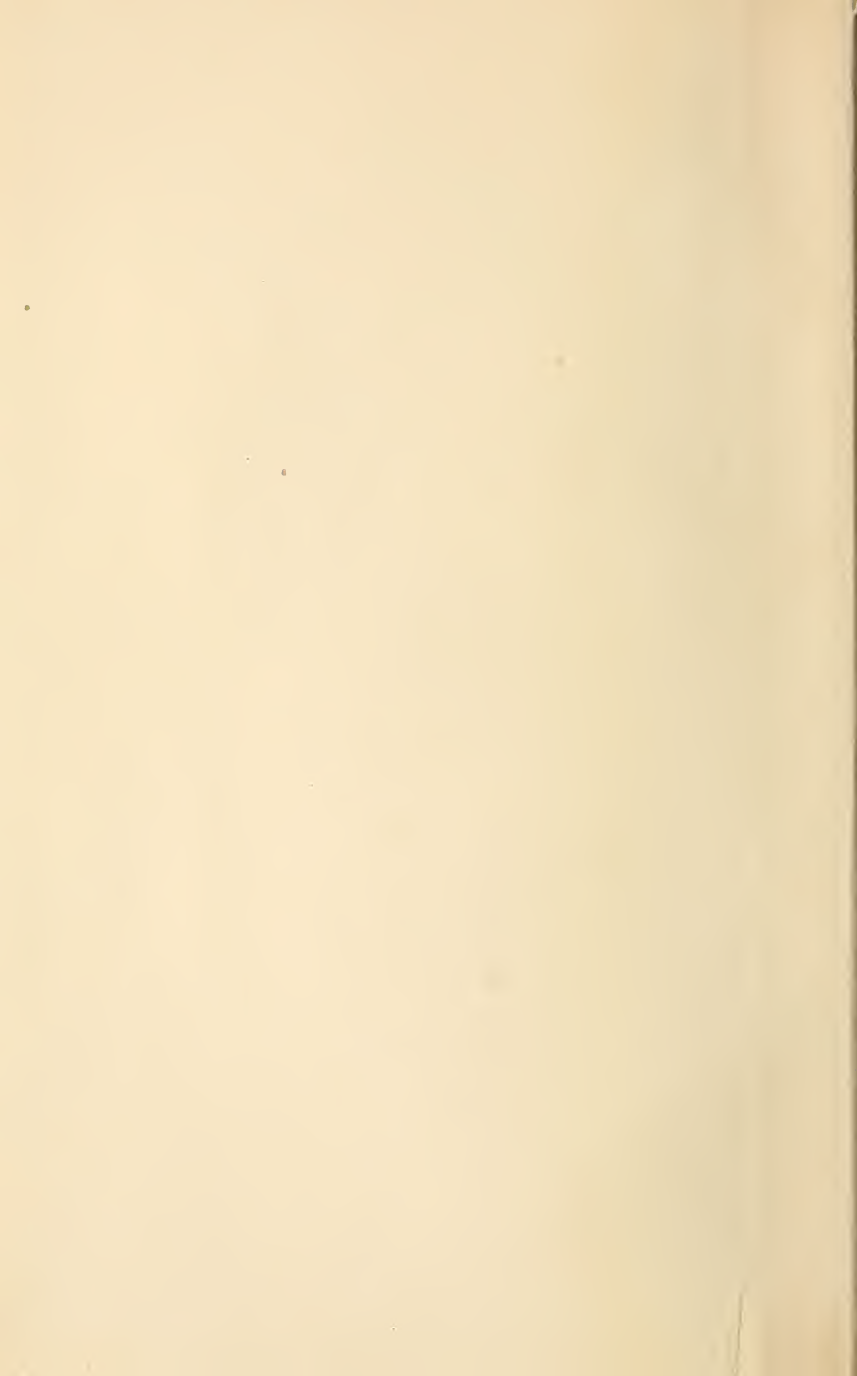


00004317944









June 3

ANALYSIS
OF THE
INFLUENCE OF NATURAL RELIGION.

"Among the works read in the course of this year (1822) which contributed materially to my development, I ought to mention a book (written on the foundation of some of Bentham's manuscripts, and published under the pseudonyme of Philip Beauchamp), entitled 'Analysis of the Influence of Natural Religion on the Temporal Happiness of Mankind.'

"This was an examination not of the truth, but of the usefulness of religious belief in the most general sense, apart from the peculiarities of any special Revelation; which, of all the parts of the discussion concerning religion, is the most important in this age, in which real belief in any religious doctrine is feeble and precarious, but the opinion of its necessity for moral and social purposes almost universal; and when those who reject revelation very generally take refuge in an optimistic Deism, a worship of the order of Nature and the supposed course of Providence, at least as full of contradictions and perverting to the moral sentiments as any of the forms of Christianity, if only it is as completely realized. Yet, very little, with any claim to a philosophical character, has been written by sceptics against the usefulness of this form of belief.

"The volume bearing the name of Philip Beauchamp had this for its special object. Having been shown to my father in manuscript, it was put into my hands by him, and I made a marginal analysis of it as I had done of the 'Elements of Political Economy.' Next to the 'Traité de Législation,' it was one of the books which by the searching character of its analysis produced the greatest effect upon me. On reading it lately after an interval of many years, I find it to have some of the defects as well as the merits of the Benthamic modes of thought, and to contain, as I now think, many weak arguments, but with a great overbalance of sound ones, and much good material for a more completely philosophic and conclusive treatment of the subject."—JOHN STUART MILL'S AUTOBIOGRAPHY, page 69.

"This essential portion of the inquiry into the temporal usefulness of religion is the subject of the present Essay. It is a part which has been little treated of by sceptical writers. The only direct discussion of it with which I am acquainted is in a short treatise, understood to have been partly compiled from manuscripts of Mr. Bentham, and abounding in just and profound views; but which, as it appears to me, presses many parts of the argument too hard."—J. S. MILL'S ESSAY ON THE UTILITY OF RELIGION, page 76.

"Although not generally known, it is, we believe, a fact that the late Mr. Grote was the author of a treatise on Natural Religion, published under an assumed name so far back as the year 1822. The full title of this work is 'Analysis of the Influence of Natural Religion, &c., &c., by Philip Beauchamp.'"—THE ATHENÆUM, May 31, 1873.

ANALYSIS

OF THE

Influence of Natural Religion

ON THE

TEMPORAL HAPPINESS OF MANKIND.

BY

PHILIP BEAUCHAMP, *friend.*

Grote, George

A NEW EDITION.

LONDON:

EDWARD TRUELOVE, 256, HIGH HOLBORN.

1875.

BL185

.G7

1875

48 65 5 5

AUG 13 1942

11-41
28

P R E F A C E.

THE following pages present a temperate, and I hope a satisfactory, examination of the temporal good or evil produced by Natural Religion. The topic is of unspeakable importance, and has by no means met with the attention which it deserves. It has indeed scarcely ever been separately considered, and those who have controverted the truth of religion have suffered themselves with but little opposition to be decried as inflicting the deepest injury upon humanity—as corrupting the most effectual source both of rectitude and of consolation—and as robbing mankind of doctrines, which, supposing they were false, ought nevertheless to have been invented and inculcated. Such has been the current opinion on the subject: and it need not be remarked how strong must have been the inclination of an audience so prepossessed, to support that which they regarded as the firmest tie and protection of society.

It is therefore essentially requisite, before the question as to the truth of religion can be brought to a fair and unbiassed decision, to estimate correctly the advantages or disadvantages which result from its adoption. If the estimate of these advantages drawn up by its advocates be really well-founded, we may safely pronounce that no anti-religious writer could possibly make a convert, even though he were armed with demonstration as rigorous as that of Euclid.

Should the following reasonings be deemed conclusive, a clear idea may be formed of the temporal gain or loss accruing from the agency of Natural Religion. Whether the doctrines which this term involves be true or false, is a point on which I do not intend to touch: nor is the question of any import, so far as regards the present discussion. Though these doctrines were false, yet many religionists allege that it would be salutary to deceive mankind into a belief of their truth: And conversely, others might with equal right maintain, that although they were true, it might

perhaps still be pernicious, so far as regards the present life, to receive them as true.

Under the term *Natural Religion*, I include all religious ✓ belief not specially determined and settled by some revelation (or reputed revelation) from the Being to whom the belief relates. The good or bad temporal tendency of any particular alleged revelation, can of course only be ascertained by an inspection of the books in which it is contained, and must therefore form a separate inquiry. To any such inquiry however, the present discussion is an essential preliminary. For if it be discovered that Religion, unassisted by revelation, is the foe and not the benefactor of mankind, we can then ascertain whether the good effects engrafted upon her by any alleged revelation, are sufficient to neutralize the bitterness of her natural fruits. Nor is it possible to measure the benefit or injury derived from Revealed Religion, without first determining the effects of Religion herself without any revelation.

Divines have on many occasions admitted and enlarged upon the defects and bad tendency of Natural Religion. Hence, they infer, the necessity of a revelation. Whoever contends that a revelation was a present highly necessary, and a most signal instance of the benevolence of God, must also contend that the pre-existing religion was, to say the least, productive of a very slender portion of good. And if our present inquiry should demonstrate that Natural Religion has produced a large balance of temporal evil above temporal good, this will evince still more forcibly the necessity of a revelation such as to purge and counteract its bad effects.

To obviate all misconceptions, I wish to declare beforehand, that whenever the general term *religion* is used in the following treatise I mean it to denote *mere Natural Religion*, apart from revelation. If I do not constantly annex the qualifying epithet *natural*, it is from a wish to avoid needless repetition of that which may be indicated once for all in the beginning. In the same manner I wish it to be understood, that whenever the terms, *sacerdotal class*, or any synonymous phrases, are employed, it is only the ministers of Natural Religion who are designated.

December, 1822.

TABLE OF CONTENTS.

PART I.

CHAPTER I.

Preliminary Statements and Definitions	9
--	-----	-----	-----	-----	---

CHAPTER II.

The expectations of posthumous pleasure and pain, which Natural Religion holds out, considered simply and in themselves	...	11
---	-----	----

CHAPTER III.

The same expectations considered as conditional, and as exercising influence upon human conduct	...	...	...	...	...	15
SECTION I.—Natural Religion provides directly no rule of guidance whatever...	...	...	...	...	...	16
SECTION II.—It indirectly suggests, and applies its inducements to the observance of, a rule of action very pernicious to the temporal interests of mankind	...					18

CHAPTER IV.

Farther considerations on the temporal usefulness of that rule of action which the inducements of Natural Religion enforce	...	37
--	-----	----

CHAPTER V.

Of the efficiency of the inducements held out by Natural Religion. How far superhuman inducements can be regarded as likely to prove influential where no human inducements would be influential	43
--	-----	-----	-----	-----	-----	-----	----

CHAPTER VI.

Efficiency of the superhuman inducements to produce temporal evil: Their inefficiency to produce temporal good	46
--	-----	-----	----

CHAPTER VII.

Analysis of the source from whence the real efficiency of superhuman inducements is almost wholly derived	53
---	-----	-----	-----	----

CHAPTER VIII.

Proof of the complete inefficiency of superhuman inducements, when at variance with, or unassisted by, public opinion...	...	56
Recapitulation of the contents of the first Part	... ..	61

P A R T II.



Catalogue of the various modes in which Natural Religion produces temporal mischief	63
---	----

CHAPTER I.

Of the mischiefs which it occasions to the believer individually	64
I. Inflicting unprofitable suffering	<i>ib.</i>
II. Imposing useless privations	65
III. Impressing undefined terrors	67
IV. Taxing pleasure, by the infusion of preliminary scruples and subsequent remorse	69

CHAPTER II.

Of the mischiefs which Natural Religion occasions, not only to the believer himself, but also to others through his means	69
I. Creating factitious antipathies	<i>ib.</i>
II. Perverting the popular opinion—Corrupting moral sentiment — Sanctifying antipathies — Producing aversion to improvement	76
III. Disqualifying the intellectual faculties for purposes useful in this life	83
Section I. Disjoining Belief from Experience	84
IV. Suborning unwarranted belief	97
V. Depraving the temper	100
VI. Creating a particular class of persons incurably opposed to the interests of humanity...	103

ANALYSIS,

&c.



CHAPTER I.

Preliminary Statements and Definition.

ON the truth of religion much has been urged ; on its usefulness and beneficial tendency, comparatively little—little, at least, which can be termed argumentative or convincing. But assumption is shorter than proof, and the advocates of religion, though scarcely deigning to bestow any inquiry or analysis upon the subject, have not failed to ascribe to it results of supreme excellence and happiness. It has been affirmed to be the leading bond of union between the different members of society—to be the most powerful curb on the immoral and unsocial passions of individuals—to form the consolation and support of misfortunes and declining life—in short, it has been described as the most efficient prop both of inward happiness and of virtuous practice in this world. Whether these sublime pretensions are well founded or not, the following inquiry is destined to ascertain.

The warmest partisan of natural religion cannot deny, that by the influence of it (occasionally at least) bad effects have been produced ; nor can any one on the other hand venture to deny, that it has on other occasions brought about good effects. The question therefore is, throughout, only as to the comparative magnitude, number, and proportion of each.

One course has indeed been adopted, by means of which religion has been, in appearance, extricated from all imputation, of having ever given birth to ill effects in any shape. So far as the results occasioned by it have been considered as good, the producing cause has been termed *religion* : so far as these results have been regarded as bad, this name has been discarded and the word *superstition* has been substituted. Or these injurious effects have avowedly been thrown aside under the pretence, that they are *abuses of religion* ; that the abuse of a thing cannot be urged against its use, since the most beneficent preparations may be erroneously or criminally applied. By these false methods of reasoning the subject has been inconceivably overclouded, and it is therefore essentially necessary to expose and guard against such fallacies in the outset. From the former of these two sources all deception will be obviated by an accurate definition of the term *religion* ; by strictly confining it to one meaning, and invariably introducing it whenever that meaning is implied. Against the latter principle, by which what are called the abuses of a thing are discarded from the estimate of its real importance and value, we declare open war. By the use of a thing, is meant the good which it produces ; by the abuse, the evil which it occasions. To pronounce upon the merits of the thing under discussion, previously erasing from the reckoning all the evil which it occasions, is most preposterous and unwarrantable. Were this mode of summing up receipts and eluding all deductions of outgoings, admissible, every institution which had ever produced any good effects at all, must be applauded as meritorious and useful, although its pernicious effects, which had been thrust out of the account, might form a decided and overwhelming balance on the other side.

✓ By the term *religion* is meant the belief in the existence of an almighty Being, by whom pains and pleasures will be dispensed to mankind, during an infinite and future state of existence. And religion is called natural, when there exists no written and acknowledged declaration, from which an acquaintance with the will and attributes of this almighty Being may be gathered.

My object is therefore to ascertain, whether the belief of

posthumous pains and pleasures, then to be administered by an omnipotent Being, is useful to mankind—that is, productive of happiness or misery in the present life.

I say, *in the present life*, for the distinction is exceedingly important to notice. Compared with an interminable futurity, the present life taken in its utmost duration, is but as a point, less than a drop of water to the ocean. Although, therefore, it should be demonstrated, that religion, considered with reference to the present life, is not beneficial but pernicious—not *augmentative* but destructive of human happiness—there might still remain ample motive to the observance of its precepts, in the mind of a true believer.

CHAPTER II.

The Expectations of posthumous Pain and Pleasure, which Natural Religion holds out, considered simply and in themselves.

THE pains and pleasures, which are believed to await us in a posthumous existence, may be anticipated either as conditional, and dependent upon the present behaviour of the believer, or as unconditional dispensations, which no conduct on his part can either amend or aggravate. Though perhaps it is impossible to produce any case in which the belief has actually assumed this latter shape, yet it will be expedient to survey it in this most general and indeterminate form, before we introduce the particular circumstances which have usually accompanied the reception of it. A few considerations will suffice to ascertain, whether expectations of posthumous pains and pleasures, considered in themselves and without any reference to the direction which they may give to human conduct, are of a nature to occasion happiness or misery to the believer.

Nothing can be more undeniable, than that a posthumous

existence, if sincerely anticipated, is most likely to appear replete with impending pain and misery. The demonstration is brief and decisive.

A posthumous state of existence is necessarily unknown and impervious to human vision. We cannot see the ground which is before us. We possess not the slightest means of knowing whether it resembles that which we have already trodden. The scene before us is wrapped in impenetrable darkness. In this state of obscurity and ignorance, the imagination usurps the privilege of filling up the void, and what are the scenes which she portrays? They are similar to those with which the mind is overrun during a state of earthly darkness—the product of unmixed timidity and depression; fear is the never-failing companion and offspring of ignorance, and the circumstances of human life infallibly give birth to such a communion. For the painful sensations are the most obtrusive and constant assailants which lie in ambush round our path. The first years of our life are spent in suffering under their sting, before we acquire the means of warding them off. The sole acquisition applicable to this purpose is knowledge—knowledge of the precise manner and occasion in which we are threatened, and of the antidote which may obviate it. Still however the painful sensations are continually on the watch to take advantage of every unguarded moment; nor is there a single hour of our life in which the lessons of experience are not indispensably necessary for our protection against them.

Since then it is only to knowledge that we owe our respite from perpetual suffering; wherever our knowledge fails us and we are reduced to a state of unprotected helplessness, all our sense of security, all anticipations of future ease, must vanish along with it. Ignorance must generate incessant alarm and uneasiness. The regular economy of the universe, by which nature is subjected to general laws, and the past becomes the interpreter of the future, is often adduced as a reason for extolling the beneficence of the Deity; and a reliance on the stability of *events*, as well as in the efficacy of the provision we have made against the future, is justly regarded as the most indispensable ingredient in human happiness. Had we no longer any confident

expectation that to-morrow would resemble yesterday—were we altogether without any rule for predicting what would occur to us after this night, how shocking would be our alarm and depression? The unknown future, which was about to succeed, would be pregnant to our affrighted imaginations with calamity from which we knew not how to shelter ourselves. Infants are timorous to a proverb, and perhaps there is scarcely any man, possessed of vision, whom darkness does not impress with some degree of apprehension and uneasiness. Yet if a man fancies himself unsheltered, when only the visible prognostics of impending evil are effaced, while all his other means of foresight and defence remain inviolate, how much keener will be the sense of his unprotected condition, when all means of predicting or averting future calamity are removed beyond his reach? If, in the one case, his alarmed fancy peoples the darkness with unreal enemies, and that too in defiance of the opposing assurances of reason, what an array of suffering will it conjure up in the other, where the ignorance and helplessness, upon which the alarm is founded, is so infinitely magnified, and where reason cannot oppose the smallest tittle of evidence?

I have thus endeavoured to show that from the unintermitting peril to which human life is exposed, and the perpetual necessity of knowledge to protect ourselves against it, mankind must infallibly conceive an unknown future as fraught with misery and torment. But this is not the only reason which may be assigned for such a tendency. Pain is a far stronger, more pungent, and more distinct sensation than pleasure; it is more various in its shapes, more definite and impressive upon the memory, and lays hold of the imagination with greater mastery and permanence. Pain, therefore, is far more likely to obtrude itself upon the conceptions, where there exists no positive evidence to circumscribe their range, than pleasure. Throughout the catalogue of human suspicions, there exists not a case in which our ignorance is so profound as about the manner of a posthumous existence; and since no reason can be given for preferring one mode of conceiving it to another, the strongest sensations of the past will be perfectly sure to break in, and to appropriate the empty canvas. Pain will dictate

our anticipation, and a posthumous life will be apprehended as replete with the most terrible concomitants which such a counsellor can suggest.

Besides, pain alone, and want or uneasiness, which is a species of pain, are the standing provisions of nature. Even the mode of appeasing those wants, is the discovery of human skill; what is called *pleasure* is a secondary formation, something superadded to the satisfaction of our wants by a farther reach of artifice; and only enjoyable when that satisfaction is perfect for the present, as well as prompt and certain for the future. Want and pain, therefore, are natural; satisfaction and pleasure, artificial and invented: and the former will on this ground also be more likely to present itself as the characteristic of an unknown state, than the latter.

The preceding arguments seem to evince most satisfactorily, that a posthumous existence, if really anticipated, is far more likely to be conceived as a state of suffering, than of enjoyment. Such anticipation, therefore, considered in itself, and without any reference to the direction which it gives to human conduct, will assuredly occasion more misery than happiness to those who entertain it.

Though believers in a posthumous existence seldom in fact anticipate its joys or torments as unconditionally awaiting them, and altogether independent of their present conduct, yet it is important to examine the effects and tendency of the belief, when thus entertained. We frequently hear the hope of immortality magnified as one of the loftiest privileges and blessings of human nature, without which man would be left in a state of mournful and comfortless destitution. To all these vague declamations, by which it is attempted to interest the partiality of mankind in favour of the belief in question, the foregoing arguments furnish a reply; they demonstrate that such anticipations, so far from conferring happiness on mankind, are certain to fasten in preference upon prospects of torments, and to occasion a large overplus of apprehension and uneasiness—at least until some revelation intervenes to settle and define them, and to terminate that ignorance which casts so terrific a character over the expected scenes.

He who imagines himself completely mortal, suffers no

apprehension or misery, in this life, from the prospect of death, except that which the pains attending it, and the loss of present enjoyments, unavoidably hold out. A posthumous existence, if anticipated as blissful, would doubtless greatly alleviate the disquietude which the prospect of death occasions. It cannot be denied that such a persuasion would prove the source of genuine happiness to the believer. But the fact is, that a posthumous existence is not, by the majority of believers, anticipated as thus blissful, but as replete with terrors. The principles of human nature, to which reference has been made in the foregoing arguments, completely warrant this conclusion, supposing no revelation at hand to instil and guarantee more consoling hopes. It is obvious therefore, that natural religion, alone and unassisted, will to the majority of its believers materially aggravate the disquietude occasioned by the prospect of death. Instead of soothing apprehensions which cannot be wholly dispelled, it would superadd fresh grounds of uneasiness, wrapped up in an uncertainty which only renders them more painful and depressing.

Having thus ascertained, that posthumous anticipations, considered in themselves and in their capacity of feelings, occasion more unhappiness than benefit to the believer, I shall now examine them under that point of view in which they are commonly regarded as most beneficial and valuable.

CHAPTER III.

The Expectations of posthumous Pain and Pleasure, which Natural Religion holds out, considered as conditional, and as exercising Influence upon human Conduct.

IT is in this mode that such expectations are commonly regarded as most beneficial to mankind. The anticipation of posthumous pleasure and pain, conditional upon the

actions of the believer, is affirmed to imprint upon individual conduct a bias favourable to the public happiness. I shall now proceed to investigate the validity of this plea, which has hitherto been seldom challenged.

If natural religion contributes to human happiness, by means of the influence which it exercises on the conduct of men, such a result can be brought about only in one of these ways : Either it must provide a *directive rule*, communicating the knowledge of the *right path*—or it must furnish a *sanction* or inducement for the observance of some directive rule, supposed to be known from other sources. Unless it thus either admonishes or impels, it cannot possibly affect in any way the course of human nature.

SECTION I.—NATURAL RELIGION FURNISHES NO DIRECTIVE
RULE WHATEVER.

It is obvious at first sight, that natural religion communicates to mankind no rule of guidance. This is the leading defect which revelation is stated to supply, by providing an authentic enumeration of those acts to which future pains and pleasures are annexed. Independent of revelation, it cannot be pretended that there exists any standard to which the believer in a posthumous existence can apply for relief and admonition. The whole prospect is wrapt in impenetrable gloom, nor is there a streak of light to distinguish the one true path of future happiness from the infinite possibilities of error with which it is surrounded.

Nor is the absence of any authoritative collection of rules, by which the believer might adjust his steps in all circumstances, however difficult, the only defect to be remarked. Experience imparts no information upon the subject. That watchful scout, who on all other occasions spies out the snares and terrors of the march, and points out the path of comparative safety, here altogether deserts us. We search in vain for any witness who may enlighten this deplorable ignorance. The distribution of these pains and pleasures is completely unseen, nor does either the gainer or loser ever return to testify the mode of dispensing them. We cannot therefore pretend even to conjecture whether there is any general rule observed in awarding

them; or if there be a rule, what are its dictates. It is impossible to divine what behaviour is visited with severity, what conduct leads to pleasurable results, during a state in which there is not a glimmering of light to guide us.

The natural religionist therefore is not only destitute of any previous official warning, by a compliance with which he may ensure safety or favour: he has not even the means of consulting those decisions according to which the pleasures and pains are actually awarded to actions already committed. Not only is there no statute law extant, distinguishing, with that strict precision which should characterize the legislator as he ought to be, the path of happiness from that of misery: even the imperfect light of common law is here extinguished—even that record of decisions is forbidden from whence we might at least borrow some shadowy and occasional surmises, and learn to steer clear of the more excruciating lots of pain. The darkness is desperate and unfathomable; and as truth and rectitude can be but a single track amidst an infinity of divergent errors, the chances in favour of a wrong line of conduct are perfectly incalculable. Yet a false step, if once committed, is altogether without hope or remedy. For when the posthumous sufferings are inflicted, the hour of application and profit is irrevocably past, and the sufferer enjoys not even the melancholy consolation which he might derive from the hope of preventing any future repetition of the same torture.

It seems, therefore, almost unaccountable, that natural religion, how rich soever its promises, how terrible soever its threats, should exercise the least influence upon human conduct, since the conditions of its awards are altogether veiled from our sight. Why does the prospect of other pains affect our conduct? Because experience teaches us the actions to which they are specially attached. Until we acquire this knowledge, our behaviour cannot possibly be actuated by the anticipations which they create. How then can natural religion, shrouded as it is in such matchless obscurity, prove an exception to these infallible principles, and impel mankind without specifying a single benefit derivable from one course of action rather than another?

Since however it unquestionably does exercise some influence upon human conduct, this must be effected by providing inducements for some extraneous directive rule. I shall proceed to examine the nature of the precepts which it thus adopts and enforces, since there are none peculiarly suggested by itself.

SECTION II.—NATURAL RELIGION INDIRECTLY SUGGESTS, AND APPLIES
HER INDUCEMENTS TO THE OBSERVANCE OF, A RULE OF ACTION
VERY PERNICIOUS TO THE TEMPORAL INTERESTS OF MANKIND.

In inquiring what extraneous rules of conduct are likely to promise either posthumous pleasure, or security from posthumous pain, we are unable to perceive, at first, how the believer should be led to any preference or conclusion upon the subject. So completely are we destitute of evidence, that it seems presumptuous to select any one mode of conduct, or to exclude any other. Experience alone can announce to us what behaviour is attended with enjoyment or discomfort during this life; it is this guide alone who informs us that the taste of fruit will procure pleasure, or that contact with the fire will occasion pain, and if the trial had never been made, we should to this day have remained ignorant even of these trite and familiar facts. We could not have affirmed or denied anything about them. Suppose a species of fruit perfectly new to be discovered. If any one, before either he himself or some one else has tasted it, confidently pronounces that it is sweet and well flavoured, an assertion so premature and uncertified could be treated only with contempt. We should term it folly and presumption thus to prophesy the pleasure or pain consequent *in this life* upon any particular conduct, prior to any experimental test. Whence comes it then, that the same certificate, which is allowed to be our only safeguard here against the dreams and chimeras of fancy, should be dismissed as superfluous and unnecessary in our anticipations of posthumous pain and pleasure? If a man ignorant of medicine is unable to point out a course of life which shall, if pursued in England, preserve him from liability to the yellow fever when he goes to Jamaica, how much more boldness is required to prescribe

a preparatory course against consequences still farther removed from the possibility of conjecture?

Rash, however, as such anticipations may seem to be, they have almost universally obtained reception, under some form or other. And it is highly important to trace the leading assumptions which have governed the prophecies of men on the subject of posthumous pain and pleasure—to detect those universal principles which never fail to stand out amidst an infinite variety of subordinate accompaniments.

Natural religion merely implants in a man the expectation of a posthumous existence, involving awards of enjoyment and suffering apportioned by an invisible Being. This we suppose it to assure and certify; beyond this, all is dark and undiscovered. But on a subject so dim and yet so terrible, the obtrusive conjectures of fancy will not be silenced, and she will proceed to particularize, and interpolate without delay. The character of the invisible Being in whose hands these fearful dispensations are lodged, will present the most plausible theme for her speculations. If his temper, and the actions with which he is pleased or displeased, can be once discovered, an apparent clue to the secret sentences of futurity will be obtained. He will gratify those whose conduct he likes; injure those whose behaviour is disagreeable to him. But what modes of conduct will he be supposed to approve or disapprove?

Before we proceed to unfold the principles which govern our suppositions regarding his temper, it may be important to point out, in a few words, the insufficient basis upon which all anticipations of future enjoyment or suffering are built, independent of revelation. The pains and pleasures of a posthumous life are under the dispensation of the invisible Being. But so also are the pains and pleasures of this life. You do not found any expectations regarding the latter upon any assumed disposition of their invisible Dispenser. You do not pacify your ignorance of those causes which may create a tendency to the yellow fever, by conjecturing that certain actions are displeasing to his feelings. Predictions founded upon such wretched surmise would indicate the meanest imbecility. Why then should

such evidence be considered as sanctioning anticipations of posthumous awards, when the commonest experience will not allow it to be employed to interpret the dispensations of the very same Being in the present life? In estimating the chances of life and death, of health and disease, no insurer ever inquires whether the actions of the applicant have been agreeable or disagreeable to the Deity. And the reasoning, upon which the trial by ordeal rests, is regarded with unqualified contempt, implying, as it does, that this Being approves or detests modes of action, and that he will manifest these feelings by dispensations in this life, of favour or severity. Yet this is merely a consistent application of the very same shift, for superseding the necessity of experience, on which the posthumous prophecies of natural religion are founded.

In this life, however, it may be urged, there are laws of nature which the Deity cannot or will not interrupt. But why should there not also be posthumous laws of nature, discoverable only by experience of them, and inviolable to the same extent? The presumption unquestionably is, that there are such posthumous laws, and that we can no more predict, from a reference to the attributes of the Deity, the modes of acquiring pleasure and avoiding pain in a posthumous life, than we can in this.

Amidst the dimness and distance of futurity, however, reason is altogether struck blind, and we do not scruple to indulge in these baseless anticipations. The assumed character of the invisible Dispenser is the only ground on which fancy can construct her scale of posthumous promotion and disgrace. And thus the rule of action, to which natural religion will affix her inducements of future vengeance and remuneration, will be framed entirely upon the conceptions entertained regarding his character.

We thus find ourselves somewhat nearer to the object of the present inquiry, whether natural religion conduces to the happiness or misery of mankind during the present life. It appears that natural religion does not itself originate any rule of action whatever, and that the rule which it is supposed to second and enforce depends only upon conceptions of the temper of the Deity. If he is conceived to be perfectly beneficent—having no personal affections of his

own, or none but such as are coincident with the happiness of mankind—patronising those actions alone which are useful, and exactly in the degree in which they are useful—detesting in a similar manner and proportion those which are hurtful—then the actions agreeable to him will be beneficial to mankind, and inducements to the performance of them will promote the happiness of mankind. If, on the other hand, he is depicted as unbeneficent—as having personal affections seldom coincident with human happiness, frequently injurious to it, and almost always frivolous and exactive—favouring actions which are not useful at all, or not in the degree in which they are useful—disapproving with the same caprice and without any reference to utility—then the course of action by which his favour is to be sought, will be more or less injurious to mankind, and inducements to pursue it will in the present life tend to the production of unhappiness.

From this alternative there can be no escape. According to the temper of the Being whom we seek to please, will be the mode of conduct proper for conciliating his favour. To serve the devil is universally considered as implying the most abhorrent and detestable behaviour.

If we consult the language in which mankind speak of the Deity, we shall be led to imagine that he is in their conception a being of perfect and unsullied beneficence, uniting in himself all that is glorious and all that is amiable. Such is the tendency and amount of the words which they employ. Strange, however, as the inconsistency may appear, it will not be difficult to demonstrate, that mere natural religion invariably leads its votaries to ascribe to their Deity a character of caprice and tyranny, while they apply to him, at the same moment, all those epithets of eulogy and reverence which their language comprises. This discrepancy between the actual and the pretended conception is an infallible result of the circumstances, and agreeable to the principles of human nature.

1. What are the fundamental data, as communicated by natural religion, respecting the Deity, from which his temper and inclinations are to be inferred? A power to which we can assign no limits—an agency which we are unable to comprehend or frustrate—such are the original attributes

from which the disposition of the possessor is to be gathered.

Now the feeling which excessive power occasions in those who dwell under its sway, is extreme and unmixed fear. This is its appropriate and never-failing effect, and he who could preserve an undisturbed aspect in the face of a power against which he knew of no protection, and which might destroy him in an instant, would justly be extolled as a man of heroic firmness. But what is the temper of mind which fear presupposes in the object which excites it? A disposition to do harm. Now a disposition to do harm, conjoined to the power of effecting it at pleasure, constitutes the very essence of tyranny. Examine the fictitious narratives respecting men of extraordinary strength. You will find a Giant or a Cyclops uniformly portrayed as cruel in the extreme, and delighted with the scent of human blood. Such are the dispositions which the human fancy naturally imagines as guiding the employment of irresistible might. Our terrors (as Father Malebranche remarks) justify themselves, by suggesting appropriate persuasions of impending evil, and compel us to regard the possessor of unlimited powers as a tyrant.

The second characteristic of the Deity is an unknown and incomprehensible agency. Now an incomprehensible mode of behaviour, not reducible to any known principles, is in human affairs termed *caprice*, when confined to the trifling occurrences of life; *insanity*, when it extends to important occasions. The capricious or the insane are those whose proceedings we cannot reconcile with the acknowledged laws of human conduct—those whose conduct defies our utmost sagacity of prediction. They are incomprehensible agents endued with limited power. The epithets *capricious*, *insane*, *incomprehensible*, are perfectly convertible and synonymous.

Let experience now teach us the feelings with which mankind usually regard the mad, the wayward, and the unfathomable course of proceeding among themselves. They laugh at the caprices of a child; they tremble at the incoherent speech and gestures of a madman. Every one shrinks with dismay from the presence of the latter; the laws instantly enclose his body, and thrust upon it the

invincible manacles of matter, since no known apprehension will act as a sufficient coercive upon his mind. Caprice and insanity, when accompanied even with the limited strength of a man, excite in us the keenest alarm, which is only heightened by the indefinite shape of the coming evil.

But let us suppose this object of our terror to be still farther strengthened. What if we arm the incomprehensible man with a naked sword ! What if we figure him, like the insane Orlando of Ariosto, roaming about with an invulnerable hide, and limbs insensible to the chain ! What if, still farther, he be intrusted with the government of millions, seconded by irresistible legions who stand ready at his beck ! Can the utmost stretch of fancy produce any picture so appalling, as that of a mad, capricious, and incomprehensible Being exalted to this overwhelming sway ? Yet this terrific representation involves nothing beyond surpassing might, wielded by one whose agency is unfathomable. And these are the two attributes, the alliance of which, in a measure still more fearful and unlimited, constitutes the Deity, as portrayed by natural religion.

So complete is this identity between incomprehensible conduct and madness, that amongst early nations, the mad-man is supposed to be under the immediate inspiration and control of the Deity, whose agency is always believed to commence where coherent and rational behaviour terminates.

But the Deity (it will be urged) treats us with favour and kindness, and this may suffice to remove our apprehensions of him. I reply, that the most valuable gift could never efface them, while the proceedings of the donor continued to be entirely inconsistent and unintelligible. It is the very essence of caprice and madness, that present behaviour constitutes no security whatever for the future. Our disquietude for the future must therefore remain as oppressive as before, and can never be relieved by these occasional gusts of transient good-humour. As few men hope, and almost every one fears, in cases where no assured calculation can be framed, it is obvious that this irregular favouritism would still leave us in all the restlessness of suspense and uncertainty.

The actual conception, therefore, which mankind will form of the Deity, from the consideration of those original data which unassisted natural religion promulgates con-

cerning him, seems now to be sufficiently determined. He will not be conceived as designing constant and unmixed evil, for otherwise his power would carry it into effect; nor, for the same reason, as meditating universal and unceasing good. While there exists good in the universe, such a power cannot be wielded by perfect malevolence; while there exists evil, it cannot be directed by consummate benevolence.¹ Besides, either of these two suppositions would destroy the attribute of incomprehensibility and would substitute in their stead a consecutive and intelligible system of action. The Deity therefore will be conceived as fluctuating between the two; sometimes producing evil, sometimes good, but infinitely more as an object of terror than of hope. His changeful and incomprehensible inclinations will be supposed more frequently pernicious than beneficial to mankind, and the portrait of a capricious tyrant will thus be completed.

2. Unamiable, however, and appalling as this conception may actually be, it is equally undeniable that no language,

¹ Plato tells us that the Deity is perfectly and systematically well intentioned, but that he was prevented from realizing these designs, by the inherent badness and intractable qualities of matter. This supposition does indeed vindicate the intentions of the Supreme Being, but only by grievously insulting his power and limiting his omnipotence. According to this theory, the Deity becomes a perfectly *comprehensible* person; and the attribute of incomprehensibility being taken away, all the preceding reasonings which are founded on it fall to the ground. But at the same time that he becomes perfectly comprehensible, he becomes a thorough dead letter with regard to all human desires and expectations. For by the supposition his power only extends to the production of the already existing amount of good. He can produce no more good—that is, he can be of no farther use to any one, and therefore it is vain to trouble ourselves about him.

But what evidence is there for this doctrine of Plato? Not the shadow of an argument can be produced in its favour, and where nothing is set up as a defence, one cannot tell where to aim an attack. The only mode of assailing it is by constructing a similar phantom on one's own side, in order to expose the absurdity of the first by its resemblance to the second. Conformably to this rule, I affirm that the Deity is perfectly and systematically malevolent, and that he was only prevented from realizing these designs by the inherent goodness and incorruptible excellence of matter. I admit that there is not the smallest evidence for this, but it is just as well supported, and just as probable as the preceding theory of Plato.

except that of the most devoted reverence and eulogy, will ever be employed in describing or addressing the Deity. To demonstrate this, it will be necessary to revert to the origin of praise and blame.

Praise is the expression of goodwill and satisfaction towards the person who has occasioned us a certain pleasure. It intimates a readiness on our part to manifest this goodwill by some farther repayment. It supposes the performance of a service which we have neither the right to expect nor the means of exacting. We bestow it in order to evince to the performer of the service and to the public in general, that we are not insensible to the favour received, and that we are disposed to view all who thus benefit us with peculiar complacency. Our praise therefore is destined to operate as a stimulus to the repetition of that behaviour by which we profit.

Blame, on the contrary, is the signal of dissatisfaction and wrath against the person who has caused us pain. It implies a disposition which would be gratified by inflicting injury upon him. It proclaims to him, and to every one else, our sense of the hurt, and the perils prepared for all who treat us in a similar manner. And we design, by means of it, to frighten and deter every one from conduct noxious to our welfare.

Such is the origin and such the intention of the language of encomium and dispraise. Each is a species of sanction, vested in the hands of every individual, and employed by him for his own benefit; the former *remuneratory*, and destined to encourage the manifestation of kindness towards him; the latter *punitory*, and intended to prevent injurious treatment.

Having thus unfolded the nature of praise and censure, it will not be difficult to explain the laws which govern their application; and to separate the circumstances in which a man will praise, from those in which he will blame.

Our employment of the punitory sanction, or of blame, is in exact proportion to our power; our employment of the remuneratory sanction, or of praise, is in a similar manner proportional to our weakness.

The man of extraordinary power, who possesses unlimited

disposal of the instruments of terror, has not the slightest motive to praise. His blame, the herald and precursor of impending torture, is abundantly sufficient to ensure conformity to his will. The remuneratory sanction is in its nature comparatively feeble and uncertain; the punitory, when applied in sufficient magnitude, is altogether infallible and omnipotent. He who possesses an adequate command of the latter, will never condescend to make use of the former. He will regard himself as strictly entitled to the most unqualified subservience on the part of those whom he might in an instant plunge into excruciating torments. If he partially waives the exercise of this prerogative, he will consider it as an undeserved extension of mercy.

On the other hand, the man without strength or influence, who cannot hurt us even if he wished it, is cut off from the employment of the punitory sanction. His blame is an impotent murmur, threatening no future calamity, and therefore listened to with indifference. It would, under these circumstances, revolt and irritate us, or else provoke our derision. In either case, it would only render us less disposed to conform to his will, and policy therefore will induce him to repress it altogether. His sole method of influencing our behaviour is by a prodigal employment of the remuneratory sanction—by repaying the slightest favour with unbounded expressions of gratitude—by lavishing upon us such loud and devoted eulogy, as may impress us with his readiness to consecrate to our benefit all the energies of a human being, if we condescend to repeat our kindness. Such are the methods by which he endeavours to magnify and exaggerate the slender bounty which fortune permits him to apply in encouragement of the favours of mankind.

The most copious experience may be adduced in support of these principles. Does the planter, whom the law arms with unlimited power, bestow any eulogy upon his slave, in return for the complete monopoly of his whole life and services? He considers himself as entitled to *demand* all this, since he possesses the means of *extorting* its fulfilment. Let us trace the descending scale of power, and mark how the approach of weakness gradually unsheaths the remuneratory sanction. Were his free labourer (particularly in those lands where labour is scarce and highly paid) to work in his

employment with an energy and devotion at all comparable to that which he exacts from his slave, the planter would be prompt in applying the stimulus and encouragement of eulogy. A slighter service, on the part of a friend of equal rank, will draw from him encomiums on the kind and generous temper by which he has benefited. But the merest civility, even a peculiar look or word, bestowed by the king or a superior, is sufficient to impress upon him the deepest esteem and reverence. He loudly extols the gracious deportment of a person upon whom he had no claim, and from whom he could have entertained no expectations.

If any one makes me a present of a considerable sum I magnify his bounty to the skies; I recommend him to the public by all the epithets significant of kindly and beneficent feelings, and thus display the conspicuous return which I am ready to make for such treatment. But let the government grant me a claim upon his estate, however unjustly, and the premium of praise is no longer necessary when I am thus master of the engine of exaction. I no longer therefore bestow upon him by whose labour I profit, those laudatory terms which promise good will on my part. "Is it not enough for him (said Charles I. when the death of Lord Northampton was commended to his sympathy)—Is it not enough that he has died for his king?" So thoroughly is the standing demand which any one makes upon his fellow-creatures, measured by the extent of his compulsory power. It is upon those services only, which overstep this limit, and which he possesses not the means of extorting, that he will expend the tribute of his praise, or waste the incentive which it offers to a future reproduction of favours. Charles I. would not have uttered such a sentence the day before his execution.

With the weak, again, the punitive sanction is completely silenced and annulled. A slave never dreams of announcing dissatisfaction at the conduct of his master. If he did so, the consequence would be an additional infliction of stripes. In despotic governments you hear not a murmur against the oppressor—at least, until excess of suffering produces desperation. The entire extinction of all free sentiment among dependants and courtiers has become proverbial. They dare not express even that indirect and

qualified censure of their superior, which is implied in dissenting from his opinion. They tolerate his insults with a patience and complacency for which they reimburse themselves in their conversation with inferiors. Not only do they abstain from hinting that there is any censurable ingredient in his character, but they dare not even withhold their encomiums, lest they should seem to doubt his exalted merit. It is unnecessary to cite particular instances of a subservience and flattery so notorious.

In proportion as we raise the inferior into equality, his blame becomes more efficacious, and is proclaimed oftener and more freely. Advance him still higher, and his propensity to find fault will be still farther extended, until at last it becomes so excitable and eruptive, as to disregard altogether the feelings of others, and to visit with merciless severity the most trivial defect of conformity to his wishes.

From this examination we may extract some important principles, which will materially elucidate the object of the present inquiry. It appears, first, that the employment of praise or blame bears an exact ratio to the comparative weakness or strength of the critic. Weakness determines praise, strength blame; and the force of either sentiment is measured by the extent of the determining quality. The greater the disparity of power, the more severe is the blame heaped upon the inferior, the more excessive the praise lavished upon the superior. Secondly, the employment of praise and blame is in an inverse ratio to each other. He who praises the most, blames the least; he who blames the most, scarcely praises at all. The man to whom the utmost praise is addressed, seldom hears any blame—and *vice versâ*. Thirdly, the application of praise and blame bears an inverse ratio to the services performed. The greater the service rendered, the more is the performer of it blamed; the less is he praised. There is no human being from whom the planter derives so much benefit as from his slave; there is none upon whom he expends so little eulogy, or pours so much reproach. On the contrary, it is towards him who has the largest power of inflicting evil upon us, and who confers on us the most insignificant favours, that our encomiums are the warmest, our censure the most gentle

and sparing. A mere intermission of the whip, or perhaps an occasional holiday, will draw forth abundant expression of praise on the part of the slave. How gracious and beneficent is a sovereign styled, by him upon whom he has bestowed a single look of favour! The vehemence of our praise is thus not measured by the extent of the kindness bestowed, but by the superiority of the donor to the receiver, and implies only the dependence and disparity of the latter.

If the foregoing account of praise and blame be correct, it presents an entire solution of the apparent discrepancy which suggested itself at the commencement of the inquiry. It explains how the Deity, although actually conceived (from the mere data of natural religion) as a capricious despot, is yet never described or addressed without the largest and most prodigal encomiums. For where is the case in which so tremendous an exaltation of the agent above the subject can be pointed out? Where is the comparative weakness of the latter so deplorably manifest? The power of which we speak is unlimited, and therefore, with respect to it, we are altogether prostrate and abject. It is, under such circumstances, the natural course, that we should abstain from all disparaging and provocative epithets, and repress every whisper which might indicate a tone of disaffection towards the Omnipotent. "*Personne n'aime à prendre une peine inutile, même un enfant,*" observes Rousseau; and to proclaim an impotent hatred, besides being unmeaning and irrational, might prove positively noxious, by alienating any inclination to benefit us on the part of the Supreme. However painful may be the treatment which we experience at his hands, we must cautiously refrain from pronouncing our genuine sentiments of the injury, inasmuch as such a freedom might prolong or aggravate, but could never extenuate, our sufferings.

The same weakness will give birth to an extravagant and unsparing use of the remuneratory sanction. We know well how little our epithets really signify or promise, since the Deity stands in no need of our good offices; and therefore we endeavour to bestow force upon this host of unmeaning effusions by multiplying its numbers, and by

piling up superlative upon superlative. We magnify the smallest crumb into a splendid benefaction, which merits on our part a return of endless devotion to his service. By thus testifying our own ready subservience—by applying to him terms significant of qualities morally good and beneficial to mankind, and thereby intimating that every one else owes to him a similar gratitude—we hope to constitute something like a motive for repeating the favour. This varied and exuberant flattery is the only mode of soothing the irritability of an earthly despot, and therefore we naturally apply it to one of still more surpassing might.

Suppose that any tyrant could establish so complete a system of espionage, as to be informed of every word which any of his subjects might utter. It is obvious that all criticisms upon him would be laudatory in the extreme, for they would be all pronounced as it were in the presence of the tyrant, and *there* we know that no one dares to express even dissent of opinion. The unlimited agency of the Deity is equivalent to this universal espionage. He is conceived as the unseen witness of everything which passes our lips—indeed even of our thoughts. It would be madness, therefore, to hazard an unfavourable judgment of his proceedings, while thus constantly under his supervision.

It seems, therefore, sufficiently demonstrated, that the same incomprehensible power, which would cause the Deity to be conceived as a capricious despot, would also occasion him to be spoken of only under titles of the loftiest eulogy. For language is not the sign of the idea actually existing in the mind of the speaker—but of that which he desires to convey to the hearer. In the present case these two ideas are completely at variance, as they must uniformly be where there is an excessive disparity of power.

It has been necessary to pursue the inquiry into the character of the Deity, as portrayed by natural religion, to a length which may possibly seem tedious. But as the rule of conduct, to which natural religion applies her inducements, depends altogether on the conceptions framed of the invisible governor of a posthumous existence—it is of the highest moment to lay bare the actual conceptions of him,

in order to ascertain whether a behaviour adjusted according to them will be beneficial or injurious to mankind.

Since the dispositions of the Deity are, in this unenlightened condition, supposed to be thus capricious and incomprehensible, it may seem extraordinary that mankind should have attempted to assign to them a definite boundary, by marking out any line of conduct as agreeable or disagreeable to him.

But the fact is, that the terms incomprehensible and unlimited are merely negative, and therefore have no positive meaning whatever: Their actual import is, that the Deity is a being of whom we know less, and who has more power, than any other. We conceive him as differing only in degree from other possessors of power, and we therefore assimilate him the most closely to those earthly sovereigns in whom the most irresistible might resides.

We are thus furnished with a clue to the actions which unassisted natural religion will represent as agreeable and odious to the Deity. Experience announces to us what practices will recommend us to the favour of terrestrial potentates, and what will provoke their enmity. From this analogy (the nearest we can attain upon the subject) will be copied the various modes of behaviour which the Deity is imagined to favour or abominate. To pursue the former course and avoid the latter, will be the directive rule to which the inducements of natural religion affix themselves. This directive rule will indeed ramify into many accidental shapes, among different nations; but its general tenour and spirit will, throughout, be governed by the analogy just mentioned, since that is our nearest resource and substitute in the total silence of experience.

The central passion in the mind of a despot is an insatiate love of dominion, and thirst for its increase. All his approbation and disapprobation, all his acts of reward and punishment, are wholly dictated by this master-principle. I state this in a broad and unqualified manner; but I feel warranted by the amplest evidence, and by the concurrent testimony of political writers, almost all of whom stigmatize in the harshest language the unbridled government of a single man.

Pursuing this clue, it will not be difficult to distinguish

those characters which he will mark out as estimable or hateful. The foremost in his estimation will be that man who most essentially contributes to the maintenance of his power: the greatest object of his hatred will be he who most eminently threatens its annihilation. Next in the catalogue of merit will be inserted the person who can impress upon his mind, in the most vivid and forcible manner, the delicious conviction of his supremacy—who can rekindle this association continually, and strike out new modes of application to prevent it from subsiding into indifference. Next in the list of demerit will appear the name of him, whose conduct tends to invalidate this consciousness of overwhelming might—whose open defiance or tardy conformity generates mistrust and apprehension—or who, at least, can contemplate with an unterrified and uninfluenced eye the whole apparatus of majesty. Such will be the most eminent subjects, both of favour and disgrace, on the part of the despot.

In all cases where the gratification of his love of power is allied with the happiness of his subjects, qualities conducive to that happiness will recommend themselves to his patronage. But it is a melancholy truth, that this coincidence *seldom*, we might say *never*, occurs. He who is thus absorbed in love of dominion, cannot avoid loving the correlative and inseparable event—the debasement of those over whom he rules; in order that his own supremacy may become more pointed and prominent. Of course he also has an interest in multiplying their privations, which are the symptoms and measure of that debasement. Besides, his leading aim is to diffuse among his subjects the keenest impressions of his own power. This is, in other words, to plant in their bosoms an incessant feeling of helplessness, insecurity and fear; and were this aim realized, everything which deserves the name of happiness must, throughout their lives, be altogether overshadowed and stifled.

Doubtless there will be occasions on which the view of prosperity will gratify him. Such will be the case when it is strongly associated with the exercise of his own creative fiat—and when its dependence upon and derivation from himself, is so glaring as to blazon forth conspicuously the majesty of the donor. In order thus to affect the public

mind, his benefits must be rare in their occurrence, bestowed only on a few, and concentrated into striking and ostentatious masses. All the prosperity, therefore, in which he will take an interest will be that of a few favourites; his own work achieved by the easy process of donation. This munificence of temper, however, is not only not coincident with the happiness of the community, but is altogether hostile to it. The former, because the real welfare of the many is to be secured not by occasional fits of kindness, but by the slow and unobtrusive effect of systematic regulations, built upon this study of human nature, discoverable only by patient thought, and requiring perpetual watchfulness in their application: The latter, because these donatives are at the bottom mere acts of spoliation, snatching away the labours of the many for the benefit of a favoured few.

It thus plainly appears that the despot can never derive any pleasure from the genuine well being of the community, though he may at times gratify himself by exalting individuals to sudden pre-eminence over the rest. Consequently the qualities conducive to the happiness of the community will not meet with the smallest encouragement from him. They will even be discouraged, indirectly at least, by the preference shown to other qualities not contributory to this end. But the personal affections of the despot have been shown to lead, in almost all cases, to the injury of the people. And therefore those mental habits, which tend to gratify these affections, will be honoured with his unqualified approval; those which tend to frustrate them, will incur his detestation. In the former catalogue will be comprised all the qualities which lessen and depress human happiness; in the latter, all which foster and improve it.

Such is the scale according to which the praise and censure, the rewards and punishments, of the earthly potentate, will be dispensed. By this model, the nearest which experience presents, the conceptions of mankind must be guided, in conjecturing the character and inclinations of the Deity.

The first place in the esteem of the Deity will, in pursuance of this analogy, be allotted to those who disseminate his influence among men—who are most effectually em-

ployed in rendering his name dreaded and revered, and enforcing the necessity of perpetual subjection to him. Priests, therefore, whose lives are devoted to this object, will be regarded as the most favoured class.

The largest measure of his hate will in like manner be supposed to devolve on those who attempt to efface these apprehensions, and to render mankind independent of him, by removing the motives for their subjection. The most decisive way of effecting this is by presuming to call in question his existence—an affront of peculiar poignancy, to which the material despot is not exposed. Atheists, therefore, will be the persons whom he is imagined to view with the most signal abomination.

Immediately beneath the priests will be placed those who manifest the deepest and most permanent sense of his agency and power—in words, by the unceasing use of hyperbole, to extol the Deity and depress themselves—in action, by abstaining on his account from agreeable occupations, and performing ceremonies which can be ascribed to no other motive than the desire of pleasing him. Works, which can be ascribed to this motive alone, must from their very nature produce no good at all, or at least very little: for were they thus beneficial, they would be recompensed with the esteem and gratitude of mankind, and the performer of them might be suspected of having originally aimed at this independent advantage. Whereas he who whips himself every night, or prefaces every mouthful with a devotional formula, can hardly be supposed to have contemplated the smallest temporal profit, or to have had any other end in view, than that of pleasing the Deity. Such actions will be thought to convey to him the liveliest testimony of his own unparalleled influence, and the performers of them will be placed second in the scale of merit.

Next to Atheists, his highest displeasure will be conceived to attach to those who either avowedly brave his power, or tacitly slight and disregard it—who indulge in language of irreverent censure, or withhold the daily offering of their homage and prostration—who dwell careless of his supremacy, and decline altogether the endurance of privations from which no known benefit, either to themselves or

others, can arise. Such persons assume an independence which silently implies that the arm of the Deity is shortened and cannot reach them; and they will, therefore, be considered as the next objects of his indignation.

These then are the qualities, which the natural religionist, guided by the experience of temporal potentates, will imagine the Deity to favour or dislike. To this extraneous directive rule, therefore, the inducements of natural religion, and the expectations of a posthumous life, will apply themselves. Nor can we doubt, for an instant, that such a rule is highly detrimental to human happiness in this life.

It cannot be otherwise, so long as nothing more is known of the Deity except that he possesses a superhuman power, and that we cannot understand his course of action. It is the essence of power to exact obedience; and obedience involves privation and suffering on the part of the inferior. The Deity having power over all mankind, exacts an obedience co-extensive with his power; therefore all mankind must obey him, or, in other words, immolate to his supremacy a certain portion of their happiness. He loves human obedience; that is, he is delighted with human privations and pain, for these are the test and measure of obedience. He is pleased, when his power is felt and acknowledged: That is, he delights to behold a sense of abasement, helplessness, and terror, prevalent among mankind. If, under the earthly despot, rewards and punishments are undeniably distributed in a manner injurious to human happiness—under the God of unassisted natural religion, whose attributes must be borrowed from the despot, the case must be similar. There is indeed this difference which deserves to be remarked, that those deductions from human happiness which the temporal potentate requires, are altogether unproductive and final: While those exacted by the Deity, though embracing the very same period, are in comparison transient and preparatory, entitling the contracting party to the amplest posthumous reimbursement. In the former case, the expenditure of suffering is a dead loss; in the latter, it is a judicious surrender of present, in expectation of future, advantages.

But it may be urged in opposition, that the Deity is like

a beneficent judge, and not like a despot—that he fetters individual taste no farther than is necessary for the happiness of the whole. Revelation may doubtless thus characterize him; but natural religion can never portray him under this amiable aspect. His power is irresistible, and therefore all limitations of it must be voluntary and self-imposed. How then can we venture to assume, that he will exact from individuals no more self-denial than is requisite for the benefit of the whole, unless it shall please him specially to communicate to us his recognition of such a boundary? We cannot possibly know what boundary he will select, until he informs us. Prior to revelation, therefore, the Deity can be conceived as nothing else but a despot—that is, the possessor of unrestricted sway. To compare him with a beneficent judge, is an analogy wholly fallacious and inadmissible. Why is the judge beneficent? Because his power is derivative, dependent and responsible. Why does he impose upon individuals no farther sacrifices than are necessary to ensure the well being of the society? Because all the compulsory force which he can employ is borrowed from the society, who will not permit it to be used for other purposes. Suppose these circumstances altered, and that the judge possesses himself of independent irresponsible power: The result is, that he becomes a despot, and ceases altogether to be beneficent. It is only when thus strengthened and unshackled that he becomes a proper object of comparison with the Deity—and then, instead of a judge, he degenerates invariably into an oppressor and a tyrant.

Amongst other expressions of reverence towards the Deity, doubtless the appellation of a judge, one of the most adorable functions which can grace humanity, will not be omitted. But we have already shown that the language of praise is not on this occasion to be considered as indicating the existence of truly valuable qualities in the object. Because that immensity of power, which is the distinguishing attribute of the Deity, distorts the epithets of eulogy, and terrifies us into an offer of them, by way of propitiation, whether deserved or not by any preceding service.

It seems clear then from the foregoing inquiry, that the posthumous hopes and fears held out by natural religion,

must produce the effect of encouraging actions useless and pernicious to mankind, but agreeable to the invisible Dispenser, so far as his attributes are discoverable by unaided natural religion—and our conceptions of his character, are the only evidence on which we can even build a conjecture as to the conduct which may entail upon us posthumous happiness or misery. Whatever offers an encouragement to useless or pernicious conduct, operates indirectly to discourage that which is beneficial and virtuous. In addition, therefore, to the positive evil which these inducements force into existence of themselves, they are detrimental in another way, by stifling the growth of genuine excellence, and diverting the recompence which should be exclusively reserved for it.

CHAPTER IV.

Further Considerations on the temporal Usefulness of that Rule of Action, which the Inducements of Natural Religion enforce.

THOUGH the preceding argument, drawn from the character which unassisted reason cannot fail to ascribe to the Deity, seems amply sufficient to evince that the expected distribution of his favour and enmity is not such as to stimulate useful, and to discountenance pernicious conduct (regarding merely the present life); yet I shall subjoin a few considerations in addition, which may tend to corroborate and enforce my principles.

1. Suppose that by any peculiar perversion of reason, all belief in a God or in a future state should die away among the votaries of some Pagan system. Is it not perfectly unquestionable, that all which had been before conceived as the injunctions of natural religion, would at once be neglected and forgotten? We need not take any trouble to

demonstrate this, partly because it is so obvious a consequence, partly because it is always implied in the outcry raised against atheistical writings.

But the sources of pleasure and of pain, in this community, would still remain unaltered with regard to the present life, even in the state of impiety into which they had just plunged. What had been useful or pernicious to them before, would still continue to be so. They would have precisely the same motive to encourage the former and to repress the latter. Can any reason be given why their rewards and punishments should be insufficient to effect this end? There will still, therefore, remain in the bosom of each individual, ample motive to behaviour beneficial to the society—ample motive against conduct injurious to it.

To select a particular example. He who was, before the influx of disbelief, a skilful and diligent tradesman or physician, will he on a sudden become imprudent or remiss? Will he become indifferent to the acquisition of emolument and importance? It will not surely be contended, that any such alteration of character or conduct is to be anticipated. Apply a similar supposition to the same man in other capacities—as a father, a husband, a trustee, or any other function in which the happiness of some among his fellows depends upon his conduct. In neither of these cases will there be any motive for him to deviate from his former behaviour, supposing that to have been valuable and virtuous. But all the transactions, in which a man's conduct affects his fellow-creatures, may be comprised under some relation of this sort—and in none of these situations will he have any motive to exchange a beneficial for a noxious course of action. Consequently the expiration of religious belief will leave perfectly sufficient motive for the maintenance of conduct really useful to mankind.

If the practices enjoined by natural religion would expire without its support, this must be because there is no motive left to perform them. But to say that there is no such motive, proves that the practices produce no temporal benefit whatever: E converso, therefore, he who would maintain that pious works are temporally beneficial, must also affirm, that there would be motive enough to perform them, supposing our earthly existence to terminate in anni-

hilation. But no one ever thinks of asserting this : On the contrary, the vital necessity of implicit belief, as an incentive, is loudly proclaimed, and the certain extinction of all religious performances, if unbelief should become general, is announced and deplored. It is altogether inconsistent and contradictory, therefore, to maintain, that there is any temporal benefit annexed to these practices—since this, if true, must constitute a motive common both to believers and unbelievers.

2. If natural religion consisted in the practice of actions beneficial to mankind in the present life, the actions enjoined by it would be the same all over the earth. The sources of human pleasure and pain are similar everywhere, and therefore the modes of multiplying both one and the other will be similar throughout. Take, for example, any particular branch of behaviour which is justly extolled as highly conducive to human happiness: You will find justice, veracity, or prudence, precisely the same in their nature, although practised with very different degrees of strictness, both in the East, and in the West. If therefore piety consisted of a collection of qualities calculated to produce temporal benefit, you would discover the same identity between Pagan and Christian piety, as there is between Pagan and Christian justice or veracity.

But the very reverse is most notoriously the fact. The injunctions and the practices of one religion are altogether different from those of every other. Believers in any one of them will view the rest with abhorrence. A Christian who visits a country where his religion has never been heard of, will doubtless expect to meet with just or veracious men, varying in frequency according to circumstances : but he will never once dream of discovering any Christians there. Christianity therefore does not consist in the manifestation of qualities which confer temporal benefit on mankind, since these are capable of universal growth in every climate.

A mere inquiry into the meaning of words will suffice to corroborate this. When we describe an individual as belonging to any particular religion, the epithet implies that he entertains a certain set of persuasions, attested either by his own confession, or by a conformity, besides, to a

peculiar class of ceremonial practices which characterize the system. But by merely indicating the religion to which he adheres, no information has been conveyed as to his moral qualities, or whether his conduct is beneficial or noxious to his fellows. It may be either one or the other, whatever be the religion he adopts or believes in. In order to state with which class it ought to be ranked, we must employ a very different language.* We must describe him as a good Pagan or a bad Pagan—a just or an unjust Mussulman—veracious or a liar.

Consequently an adherence to the injunctions of religion is something entirely different from an habitual performance of beneficial actions. For the latter are everywhere uniform and identical, while the mandates of religion are infinitely various: And farther, in mentioning the system of religion to which any individual belongs, we do not at all state whether his conduct is beneficent or pernicious—therefore an adherence to the system is perfectly consistent either with friendship or enmity to mankind.

3. If the injunctions of piety inculcated performance or abstinence merely according as the action specified was beneficial or injurious in the present life, religion would be precisely coincident with human laws. For these latter are destined only to ensure the same end, employing temporal instead of posthumous sanctions. Religion would command and forbid the very same actions as the legislator, merely reinforcing his uncertain punishments with something more exquisite and more inevitable at the close of life. But it would give no new direction, of its own and for itself, to human conduct; It would originate no peculiar duties or crimes, but would appear simply as an auxiliary, to second and confirm that bias which the legislator would have attempted to imprint without it.

Such would have been the case had the mandates of natural religion a tendency to produce temporal happiness. How widely different is the state of the fact! Throughout the globe, under every various system, we observe the most innocuous of human pleasures criminated and interdicted by piety; pleasures such as the worst of human legislators never forbid, and never could discover any pretence for forbidding. We observe a peculiar path of merit and

demerit traced out exclusively by religion—embracing numerous actions which the law has left unnoticed, and which we may therefore infer, are not recognized as deserving either reward or punishment with reference to the present life. It is altogether impossible, therefore, that the mandates of natural religion can be directed to the promotion of temporal happiness, since they diverge so strikingly from the decrees of the legislators. Whatever other end they have in view, it cannot be the same as his.

Indeed in modern times an express discussion has arisen, whether the civil magistrate can with propriety interfere at all in matters of religion. Among the more enlightened thinkers, the doctrine of toleration, or that of leaving every man to recommend himself to God by the methods which he himself prefers, so long as he abstains from injuring others, seems to be fully recognized. Scarcely any one now is found to vindicate the exaction of a forced uniformity of worship. But the very existence of the dispute decisively implies, that religion is not naturally coincident, in her injunctions, with laws—that no pious ritual is of a character, tending in itself to promote the happiness of society. The intolerant party attempted to enforce the propriety of giving to law an express extension over an apparently independent province; their opponents endeavoured to maintain this province still untouched and unregulated. If these acts could have been shown to be productive of temporal benefit or evil, this would have been the point on which the question would have been determined, as it is with regard to other cases of human conduct. No one would have contested the necessity, in the present times at least, of interdicting any acts of worship which might consist in wounding or plundering a neighbour. But the actual point in dispute was, whether out of a number of different rituals, perfectly on a level regarding temporal profit or injury, any particular one should be singly permitted and all the rest forbidden. The argument on one side was, that the Deity preferred the species of worship which they were advocating; the other side protested against this doctrine, as an unwarranted assumption of infallibility.

It is not my purpose to enter farther into this question,

and I have only adduced it in order to evince, that the mandates of religion are altogether separate in their nature and application from those of law, and therefore cannot possibly be similar in the end which they are destined to ensure—and also that this separation is virtually implied in both sides of the dispute on freedom of worship.

4. We uniformly find religious injunctions divided into two branches, the first embracing our duty to God, the second our duty to man. However beneficial may be the tendency of this latter section, it is quite impossible that the former can produce any temporal happiness. For it is, by the very definition, a rule restrictive of our conduct on those occasions when the interests of other men are not at all concerned. On these occasions the legislator would have left us unfettered, since every man naturally selects that path which is most conducive to his temporal felicity. If any other course is thrust upon him from without, it must infallibly be a sacrifice of earthly happiness.

That branch therefore, at least, of religious injunctions, which is termed *our duty to God*, must be regarded as detrimental to human felicity in this life. It is a deduction from the pleasures of the individual, without at all benefiting the species. It must be considered, so far as the present life is concerned, as a tax paid for the salutary direction which the branch termed *our duty to man* is said to imprint upon human conduct, and for the special and unequalled efficacy, with which these sanctions are alleged to operate. Supposing also the operation of this latter branch to be noxious instead of salutary, the payment of the tax will constitute so much additional evil.

CHAPTER V.

Of the Efficiency of the Inducements held out by Natural Religion. How far super-human Expectations can be regarded as likely to prove influential, where no human Inducements would be influential.

THERE is some difficulty in estimating exactly the extent of influence which the super-human inducements, held out by natural religion, actually exercise over mankind. They appear always intermixed and confounded among that crowd of motives, which in every society submitted to our experience, impel human conduct in various directions. For the solution of the present inquiry, however, it is indispensably requisite to detach from this confused assemblage the inducements of natural religion, and to measure the force of the impulse which they communicate.

There are two modes of determining this point. 1. By analysing the nature and properties of these super-human inducements, and comparing them with those human motives which commonly actuate our conduct. We shall thus discover how far those elements, which constitute and measure the force and efficiency of all human expectations, are to be found in the super-human. 2. By examining those cases where accident places them in a state of single and unassisted agency, and thus fortifying the preceding analysis with the direct certificate of experience, so far as that is attainable.

Before, however, we embark in this investigation, it will be important to examine in what degree the super-human expectations, supposing their influence purely beneficial, can be considered as indispensable instruments in the production of happiness in this life ; or in other words, what is the number and importance of those cases, in which human inducements would be inapplicable and inoperative, and in

which posthumous expectations would effectually supply the defect.

It will be easy to see that such cases are comparatively neither numerous nor important. For wherever the legislator can distinguish what actions it is desirable either to encourage or to prevent, he can always annex to them a measure of temporal reward or punishment commensurate to the purpose. It is only necessary that he should be able to distinguish and define such actions. To affirm therefore the necessity of a recurrence to super-human agency for the repression of any definable mode of conduct, is merely to say that human laws are defective and require amendment. If this be true, let them be amended, and there will remain no ground for the complaint.

The gradations (you urge) by which guilt passes into innocence are often so nice as to be undiscoverable by the human eye, and to require the searching gaze of Omnipotence to detect their real point of separation. But if this be the case, how is it possible for the agent himself to know when he is acting well, and when he is verging towards evil? The two are undistinguishable to all men besides; why should they be otherwise to him? He knows his own intention, indeed, perfectly: It is to perform a certain action, of which no one can tell whether the tendency is beneficial or injurious. He himself cannot tell either; it is possible that he may suspect the action to be mischievous, and still intend to commit it. But he may be in error on this point, even after the most accurate consideration, and where the distinction between good and evil is so completely unassignable, the chances of error are as great as those of truth. Expectation of punishment, in case of wrong decision, could only render him more attentive in weighing the consequences, and even after this, it appears, he would be just as likely to decide wrong as right. Consequently the expectation of punishment produces no benefit whatever. Besides, if he can judge correctly, the foundations of such a judgment may be comprehended, and the offence defined, by the legislator. In all cases therefore in which guilt cannot be defined, and thence, no punishment awarded by the legislator, the apprehension of punishment from any foreign source is unproductive of any advantage.

But there are cases in which an individual may commit an act expressly forbidden by the law, relying on the impossibility or difficulty of detection. Doubtless there are such : And it is impossible to deny that on those occasions the apprehension of a posthumous verdict, from which there was no escape, *might possibly* supply an unavoidable defect in the reach of human laws. Secret crimes, however, are the only cases in which the super-human inducements can be pretended to effect an end to which human motives would be inadequate. In all other occasions, the inefficacy of human laws is merely a reproach to the legislator, who neglects to remedy a known defect. And even in the case of hidden delinquency, how frequently is the escape of the criminal owing to mistakes perfectly corrigible, such as an unskilful police, exclusion of evidence, barbarity in the punishment awarded, and other circumstances which tend to unnerve the arm of the law ! Supposing these imperfections to be removed,—suppose the penal code to be comprehensive and methodical, and its execution cheap, speedy, and vigilant, it would scarcely be practicable for the criminal to escape detection, when it was known that the crime had been committed.

It is only, therefore, when a crime is known, and the criminal undiscoverable, that super-human inducements can be vindicated as indispensably necessary for the maintenance of good conduct. And as these cases must, under a well-contrived system, be uncommonly rare, the necessity and importance of such inducements must be restricted within very narrow limits.

This is a point of some consequence. For if it should appear that these posthumous expectations are on many occasions of injurious tendency, the immediate inquiry must be, what exclusive benefit this mode of operating upon human conduct presents, in preference to any other. In reply to which, we have just demonstrated, that those cases in which beneficial influence is derivable solely from this source and not from any other, are few and inconsiderable. The extent of evil in this life would therefore be trifling, were super-human inducements entirely effaced from the human bosom, and earthly institutions ameliorated according to the progress of philosophy. The pernicious tendency,

which the former manifest on many occasions, will thus be compensated only by a very slender portion of essential and exclusive benefit.

These considerations also evince, that if it were practicable to supply the defect of human restrictions by recourse to a foreign world, we should be anxious to import active and faithful informers—to purchase such a revelation as would render our inferences of criminality more easy, precise, and extensive, in order that guilt might never escape our detection. We should not desire to introduce instruments for multiplying and protracting human torture. With these we are abundantly provided, if it were prudent or desirable to employ them. No earthly legislator, therefore, would attempt, if in his power, to perfect the efficacy of temporal enactments in the mode by which it is pretended that posthumous expectations accomplish this beneficial end.

CHAPTER VI.

Efficiency of super-human Inducements to produce temporal Evil. Their Inefficiency to produce temporal Good.

SINCE it has been shown in a former chapter that the directive rule, to which the inducements of natural religion attach themselves, will infallibly be detrimental to human happiness, it follows of course that these inducements, if they produce any effect at all, must be efficient to a mischievous purpose. I now propose to investigate the extent of influence which they exercise over mankind, as well as the manner of their operation.

All inducements are expectations either of pleasure or pain. The force with which all expectations act upon the human bosom varies according as they differ in, 1. Intensity, —2. Duration,—3. Certainty,—4. Propinquity. These are

the four elements of value which constitute and measure the comparative strength of all human motives.

Take for example an expected pleasure. What are the motives which govern a man in the investment of money? He prefers that mode in which the profits are largest, most certain, and quickest. Present to him a speculation of greater hazard or in which he must be kept longer out of his money; the value of such an expectation is less, and he will not embrace it unless allured by a larger profit. Deficiency in certainty and propinquity will thus be compensated by an increase of intensity and duration.

To appreciate, therefore, the sway which posthumous expectations exercise over the behaviour of mankind, we must examine to what degree they comprise these elements of value.

First, they are to the highest degree deficient in *propinquity*. Every one conceives them as extremely remote; and in the greatest number of instances, such remoteness is conformable to experience, as insurance calculations testify.

Secondly, they are also defective in *certainty*. Posthumous pleasures and pains are reserved to be awarded in the lump, after a series of years. The only possible mode of distributing them, at such a period must be by reviewing the whole life of the individual—by computing his meritorious and culpable acts and striking a balance between them. It is impossible to conceive an expectation more deplorably uncertain, than that which such a scale of award must generate. In order to strip it of this character of doubt, the individual should have kept an exact journal of his debtor and creditor account with regard to post-obituary dispensations. Whoever does or ever did this? Yet if it is not done, so universal is self-deceit, that every man will unquestionably over-estimate his own extent of observance. His impression will thus be, that he has a balance in hand, and that the performance of any particular forbidden act will but slightly lessen the ample remainder which awaits him. But suppose it otherwise—let him imagine that the balance is against him. There still remains the chance of future amendment and compensation, by which it may be rendered favourable, and this prospect is

incalculably more liable to exaggeration than the estimate which he forms of his past conduct.

The prodigious excess to which mankind heap up splendid purposes for the coming year, is matter of notoriety and even of ridicule. A slight accession of punishment incurred by what the individual may be about to do at the moment, will be lost in the contemplation of the mass of subsequent reward. Posthumous expectations must, therefore, under every supposition, be pre-eminently defective in the element of certainty.

To make up for this want of certainty and propinquity, the pleasures and pains anticipated in a future life are (it will be urged) intense and durable to the utmost extent. Imagination, no doubt (our sole guide under unassisted natural religion), may magnify and protract them beyond all limit, since there is no direct testimony which can check her career. But it should be remarked that this excessive intensity and permanence can never be otherwise than purely imaginary, nor can the most appalling descriptions of fancy ever impart to them that steady and equable impressiveness which characterizes a real scene subjected to the senses. As all our ideas of pleasure and pain are borrowed from experience, the most vivid anticipations we can frame cannot possibly surpass the liveliest sensation. Magnify the intensity as you will, this must be its ultimate boundary. But you never can stretch it even so high as this point: For to do this would be to exalt the conceptions of fancy to a level with real and actual experience, so that the former shall affect the mind as vividly as the latter—which is the sole characteristic of insanity, and the single warrant for depriving the unhappy madman of his liberty.

If, indeed, the expectations actually created in the mind corresponded in appalling effect to the descriptions of the fancy—and if the defects of certainty and propinquity could be so far counteracted as to leave these expectations in full possession of the mind—the result must be, absolute privation of reason, and an entire sacrifice of all sublunary enjoyment. The path of life must lie as it were on the brink of a terrific precipice, where it would be impossible to preserve a sound and distinct vision, and where the imminent and inextricable peril of our situation would altogether

absorb the mind, so as to leave us no opportunity for building up any associations of comfort or delight. A man who is to have an operation performed in a short space of time, cannot dismiss it from his thoughts for an instant; how much less, if he sees, or believes that he sees, a gigantic hand, armed with instruments of exquisite torture, and menacing his defenceless frame?

Such must be the result, if these anticipations did really affect the mind in a degree proportional to their imagined intensity. They cannot be conceived as tolerably near and certain, without driving the believer mad, and without rendering it a far more desirable lot for him to have had no life at all, than the two lives taken together. Looking therefore to the happiness of the present life alone, it appears to be merely saved from complete annihilation, by that diminished influence of the posthumous prospects which distance and uncertainty cannot fail to occasion. It is their inefficiency, and not their efficiency, which constitutes the safeguard of human comfort.

But what is the real value of this residuary influence? To determine this question, we must consult the analogy of human conduct and observe the effect of large expectations, when remote and uncertain, as compared with others of small amount, but close at hand and specific.

How painful are the apprehensions which the approach of death creates! To preserve the mind from being altogether overpowered by them, and to maintain a cool deportment at such an instant, is supposed to be an effort of more than human firmness. Thus terrible and overwhelming is the prospect when merely approximated to the eye. Strip it of its propinquity, and all its effect upon the mind immediately vanishes. Its real terrors, its ultimate certainty, remain unimpaired; but delay the moment, for a few years at farthest, and the whole scene is immediately dismissed from the thoughts. So confident and neglectful do we become upon the subject, that it requires more than ordinary fore-thought to make those provisions which a due regard to the happiness of our survivors would enjoin.

This is an illustration of peculiar value, because it is a case in which mere remoteness practically annuls the most dreadful of all expectations, without insinuating even the

most transient suspicion of ultimate escape. But if distance alone will produce so striking a deduction, how much will its negative effect be heightened, when coupled with uncertainty as to the eventful fulfilment? It seems apparent that these two negative circumstances, taken together, must altogether prevent the most painful anticipations from ever affecting the mind, unless under very peculiar circumstances, which we shall presently notice.²

Analogy therefore seems to testify most indisputably, that sufferings so remote and so uncertain as those of a posthumous life, whatever may be their fancied intensity, can scarcely affect the mind at all, in its natural state. Such anticipations can only obtain possession of it when introduced by other analogous ideas, which have previously perverted the usual current of thought, and rendered it fit for their reception. Under such circumstances, these new allies cannot fail to aggravate most powerfully that tone of sentiment to which they owe their origin. Their distance and uncertainty will be forgotten, and they will be conceived as imminent and inevitable; while the impression of their intensity will be more vehement than ever. Such will be the case in the peculiar state of mind to which we here allude; but taking mankind as they usually think and

² This important principle, that a small amount of pain, if quick and certain in its application, provides a more effectual restraint than the most painful death, when delay and the chance of complete escape is interposed—seems to be pretty generally recognized at the present day. Instruments of torture have consequently become obsolete; and most of the alterations of the legislator have been designed to cure the lame foot, and to accelerate the pace of justice. In this, indeed, his aim has been not merely to prevent in the most complete manner the commission of crime, but also to prevent it at the expense of the smallest possible aggregate of suffering. For to denounce penalties of shocking severity, but tardy and uncertain in their execution, would be to create the greatest sum of artificial pain, with the least possible preventive effect. This would be entirely at variance with the genuine spirit of legislation, whose end is the extension of human happiness by the eradication of noxious acts. This, however, cannot be the purpose of the God of natural religion; who is uniformly conceived (as I have before remarked) to delight in human misery, and who is therefore supposed, with perfect consistency, to inflict pain where the pain itself cannot produce a particle of benefit, and where the anticipation of it can have no effect whatever in repressing vicious conduct.

judge, it is altogether contrary to experience that posthumous expectations should ever be otherwise than nugatory.

Now if, according to the general tenor of thought, they become thus dormant and inoperative, they cannot possibly be employed as restraints upon crime. For when crime is committed, the mind is under the sway of a present and actuating temptation. It is not only exempt from all such associations as might contribute to kindle up the thoughts of posthumous terrors; but it is under the strong grasp and impulse of a contrary passion, which fills it with ideas of a totally opposite character. So completely indeed does the temptation absorb the whole soul, that it is difficult in many cases to counteract it by the most immediate and unequivocal prospect of impending evil. But unless the punishment denounced obtrudes itself upon the delinquent with a force sufficiently pressing and inflexible to overbear the sophistry of temptation, we may be assured that he will be insensible to the threats and will commit the crime. How much more then, where the apprehended evil is so remote and uncertain, and the value of the expectation so fluctuating and occasional, as to require a peculiarly favourable tone of thought before the mind can be induced to harbour it? We are surely authorized in deeming an expectation so constituted altogether useless as a motive to resist any strong desire.

But what is that preliminary state of mind into which posthumous apprehensions find so easy an admittance? It is that in which congenial feelings have been predominant—a state of timidity and depression, when gloomy associations overspread the whole man, and cast horror and wretchedness round his future prospects. In this condition, the fountains of all painful thought are opened, and posthumous terrors present an inexhaustible fund of kindred matter. Their distance and their uncertainty are of no consequence, for the mensuration of the mental eye is at such a period confounded, and it distinguishes not the scene before it. Their indeterminate character renders them only the more appropriate, for the imagination demands but a plausible pretence and outline, to conjure up the amplest detail of terrific particulars. In sickness and in nervous despondency, associations of this kind make their most disastrous.

inroads, and contribute most actively to plunge the mind into that state of unassuageable terror, which borders so closely on insanity, and frequently terminates in it. And in the hour of death, when these apprehensions seem on the brink of reality, they obtrude themselves in thick and appalling clouds, and aggravate that prostration both of bodily and mental faculties, which marks the close of existence.

Such is the force, and such the mode of operation, belonging to these superhuman expectations, when acting singly. And it appears from hence most undeniably, that they are almost wholly inefficient on every occasion when it might have been possible for them to enlarge the sum of temporal happiness—and efficient only in cases where they swell the amount of temporal misery.

For the only benefit which they are calculated to accomplish would be the repression of crimes. To this purpose it has been shown that they are wholly inadequate; for during the influence of temptation, the only season in which a man commits crime, they find no place in the mind, and therefore can interpose no barrier. On the other hand, they act with the highest effect at a period when they cannot by possibility produce any temporal benefit—that is, at the close of life: and the extent of their influence is always in an inverse ratio to the demand for it. The greater the previous despondency, the wider the space which they occupy, and the more powerfully do they contribute to heighten those morbid associations which the overmastered reason is unable to dispel.

CHAPTER VII.

Analysis of the Source from whence the real Efficiency of superhuman Enjoyments is almost wholly derived.

SINCE the inducements which we have been discussing are altogether impotent as a barrier to temptation, and influential only in peculiar states of mind, how happens it (we may be asked) that their dominion in human affairs should be apparently so extensive? The cause of this seeming contrariety, which merely arises from a misconception regarding the actual motives of mankind, I shall now endeavour to unfold.

It has already been shown that the God of natural religion is uniformly conceived as delighting in the contemplation of his own superiority and in the receipt of human obedience—that is, in the debasement, the privations, and the misery of mankind. Now each man has a strong temptation to elude any payment,³ in his own person, of these unpleasant burthens; but he has no temptation whatever to avert from others the necessity of paying them. On the contrary, a powerful interest inclines him to exert himself in strictly exacting from every other man the requisite quota. For the Deity, pleased with human obedience, will of course be pleased with those faithful allies who aid him in obtaining it, and will in consideration of this assistance be more indulgent towards themselves. Each man, therefore, anxious for the lighter and more profitable service, will take part with God, and will volunteer his efforts to enforce upon all

³ The Reverend Mr. Colton (in a collection of thoughts entitled “Lacon”—Vol. 1. XXV.) says, “Men will wrangle for religion; write for it; fight for it; die for it; *anything but—live* for it.” The same divine also asserts, in the same volume, CLXXXIX. “Where true religion has prevented one crime, false religions have afforded a pretext for a thousand.” There cannot be a stronger acknowledgement of the enormous balance of temporal evil, which religion, considered on the whole, inflicts on mankind.

other men that line of conduct most agreeable to the divine Being. This spontaneous zeal in extorting payment from his brother debtors will dispose the creditor to remit or to alleviate his own debt.

But each individual will also be perfectly conscious that these temptations are equally active in the bosom of his neighbours. They also are upon the watch to recommend themselves to God by avenging his insulted name, and obviating any interruptions to the leisure and satisfaction of Omnipotence. They readily bring forward their terrestrial reinforcements — abuse, hatred, and injury, against any individual who forswears his allegiance to the unseen sovereign—eulogy and veneration towards him who renders it with more than ordinary strictness. Each man is thus placed under the surveillance of the rest. A strong public antipathy is pointed against impious conduct; the decided approbation of the popular voice is secured in favour of religious acts. The praise or blame of his earthly companions, will thus become the real actuating motive to religious observances on the part of each individual. By an opposite conduct it is not merely the divine denunciations that he provokes, but also the hostility of innumerable crusaders, who long to expiate their own debts by implacable warfare against the recusant.

But although thus in fact determined to a pious behaviour by the esteem and censure of his fellows, he will have the highest interest in disguising this actual motive, and in pretending to be influenced only by genuine veneration for the being whom he worships. A religious act, if performed from any other than a religious feeling, loses its character of exclusive reference to the Deity, and of course ceases to be agreeable to him. But if God is no longer satisfied with this semi-voluntary performance of the service required, neither will the neighbourhood, who take up arms in God's favour, be satisfied with it. No individual, therefore, will be able to steer clear of the public enmity, unless he not only renders these pious acts of homage, but also succeeds in convincing others that he is actuated in rendering them entirely by the fear of God. The popular sanction, therefore, not only enforces the delivery of the homage; It also compels the deliverer to carry all the marks of being influenced

solely by religious inducements, and to pretend that he would act precisely in the same manner, whatever might be the sentiments of his neighbours.

The same pretence too will be encouraged by other considerations. When a man is once compelled by some extraneous motive to go through the service, it will be his interest to claim all that merit in the eyes of God which a spontaneous performance of it would have insured. He will, therefore, assume all the exterior mien of a voluntary subjection to the invisible Being, and will endeavour to deceive himself into a belief that this is his genuine motive. In this self-imposition he will most commonly succeed, and his account of his own conduct, originally insincere, will in time be converted into unconscious and unintentional error.

We can now interpret this seeming contrariety between the natural impotence and the alleged apparent dominion, of religious inducements. For the real fact is, that they enlist in their service the irresistible arm of public opinion—and that too in a manner which secures to themselves all the credit of swaying mankind, while the actually determining motive is by general consent suppressed and kept out of view.

Religion is thus enabled to apply, for the encouragement and discouragement of those acts which fall within her sphere, the very same engines as morality. Moral conduct springs from the mutual wants and interests of mankind. It is each man's interest that his neighbour should be virtuous; hence each man knows, that the public opinion will approve his conduct, if virtuous—reprobate it, if vicious. Religious acts, indeed, no man has any motive to approve from any benefit conferred by the actual performance of them; or, to disapprove the opposite behaviour from any injury referable to it. But every man has something to gain by being active in enforcing upon others the performance of these acts—inasmuch as this is a co-operation with the views of God, which may have the effect of partially discharging, or at least of lightening, his own obligations. The same encouragements and prohibition, therefore, which mankind apply to virtue and to vice, they will be led to annex, though from a totally opposite motive, to pious or impious behaviour.

When the public opinion has once occasioned, as it cannot fail to do, a tolerably extensive diffusion of religious practices throughout the community, the censures directed against any small remainder of nonconformists will be embittered by the concurrent action of envy. I feel myself constrained to be rigidly exact in the renewal of my pious offerings : Shall my neighbour, who eludes all share in the burthen and will not deduct a moment from his favourite pursuits for similar purposes, be treated with the same courtesy and respect as myself, who expend so much self-denial in order to ensure it ? Is not the labourer worthy of his hire ? Being myself a scrupulous renderer of these services, it becomes my interest, even with my fellow-countrymen, to swell the merit of performing them, and the criminality of neglect, to the highest possible pitch, in order to create a proportionate distribution of their esteem. The more deeply I can impress this conviction upon mankind, the greater will be their veneration for me. All these principles conspire to sharpen my acrimony against my non-conforming neighbour, and render me doubly dissatisfied with that state of respite and impunity in which Omnipotence still permits him to live. In this condition of mind, nothing can be more gratifying than the self-assumed task of executing the divine wrath upon his predestined head.

CHAPTER VIII.

Proof of the Inefficiency of super-human Inducements, when unassisted by, or at variance with, public Opinion.

BY the preceding analysis I have attempted to show, that the apparent influence of posthumous expectations is at the bottom nothing more than a disguised and peculiar agency of public opinion ; and also to trace the process by

which these expectations naturally and infallibly give birth to such an inflexion of the popular voice. I now propose to confirm this explanation still farther, by citing a few most convincing examples of the complete disregard with which posthumous anticipations are treated, when the voice of the public either opposes, or ceases to enforce, their influence.

For this purpose it will be absolutely necessary to allege instances from revealed religion, because it is only by means of revelation that a written, unvarying collection of precepts has become promulgated, completely independent of any variations which may take place in the national feeling. In natural religion it is impossible to discover what is the course of action enjoined, except by consulting the reigning tone of practice and sentiment; and, therefore, the two must necessarily appear harmonious and coincident, since we can only infer the former from the latter. Revelation alone communicates a known and authoritative code, with which the actual conduct of believers may be compared, and the points of conformity or separation ascertained.

1. The first practice which may be cited, as manifesting the impotence of religious precepts, when opposed to public opinion, is that of duelling. Nothing can be more notoriously contrary to the divine law; which acts too on this occasion with every possible advantage, except the alliance of the popular voice. For the practice which religion here interdicts is attended with pain and hazard to the person committing it, and often with the most ruinous consequences to his surviving relatives. If ever super-human inducements could ensure obedience when opposed to the popular sanction, it would be in a case where all other motives conspire to aid them.

If posthumous enjoyments were the actual reward aimed at, and the real motive for religious conduct, this concurrence of other inducements would swell their influence and render them preponderant. But the truth is, that they are not the actual reward sought by the religionist. What he desires is, *to prove to the satisfaction of other men that they are so*—to acquire in their eyes the credit of unbounded attachment to the Deity. No man will give him credit for any such attachment, simply because he declines a duel. He knows that the world will ascribe his refusal to coward-

ice—and thus the concurrence of motives abates and enfeebls, instead of confirming, the efficacy of the religious precept. He will be more ready to inflict upon himself severe bodily sufferings, in compliance with the divine code, than to follow its precepts where mankind will give him no credit for the sincerity of his obedience.

Whether, however, the justice of this solution be admitted or denied, the instance of duelling must in either case demonstrate the inefficiency of religious inducements, when opposed to public opinion.

2. *Fornication* is an act directly forbidden by the super-human code—but not forbidden by the popular voice. The latter, however, does not in this case imperatively demand the infringement of the prohibitory precept, as it did in the case of the duel; but merely leaves the divine admonition to operate unsupported. To what extent it operates thus single-handed, the state of all great cities notoriously attests.

3. *Simony*, again, is forbidden in the religious code with equal strictness, and practised with equal frequency.

4. But perhaps the case in which the impotence of posthumous apprehensions is most glaring and manifest, is that of *perjury*. The person who takes an oath solemnly calls down upon himself the largest measure of divine vengeance, if he commits a particular act. In this imprecation it is implied, that he firmly anticipates the infliction of these penalties, if he becomes guilty of this self-condemned behaviour. Yet this expectation, which he thus attests and promulgates, of posthumous inflictions, has not, when stripped of the consentient impulse of public opinion, the slenderest hold upon his actions. It cannot make him forego any temptation, however small; as an appeal to unexceptionable facts will evince.

Every young man, who is entered at the University of Oxford, is obliged to take an oath, that he will observe the statutes of the University—a collection of rules for his conduct while he is a student, framed many years ago by Archbishop Laud. On this oath, after it has been once taken, not a thought is bestowed, even by the most scrupulous religionist. Its precepts are altogether unheeded and forgotten—infringed of course on every occasion when the

observance of them is at all inconvenient. The conduct of all the swearers is precisely the same as it would have been had the oath never been taken. All the posthumous vengeance which they have imprecated upon themselves—all the superhuman inflictions which they firmly anticipate—suffice not to produce the most trivial alteration of behaviour. Yet an adherence to some at least among the injunctions thus solemnly sealed, would entail scarcely any inconvenience at all. Slight, however, as this inconvenience is, the fear of post-obituary penalties is still slighter, and, therefore, even the easy means of averting them are altogether neglected.

The regulations prescribed by the oath, it will be said, are useless, and, therefore, there is no necessity for observing them. This may be very true, and may afford an unanswerable reason for discontinuing the form altogether: but it offers not the shadow of a plea for neglecting its dictates, when you have once gone through the ceremonial. By virtue of the oath you have imposed upon yourself a special obligation to the performance of certain acts; you bind yourself by your apprehension of posthumous visitations in case of failure, and in order to obviate all reluctance on the part of the Almighty, you state your own fervent desire to be so treated. Whatever obligatory force was comprised in the formula, can never be impaired by your discovery that the act enjoined will produce no beneficial consequence.

The uselessness of these regulations is, indeed, the real cause why the oath to fulfil them remains universally unobserved. But why? Because the popular voice has no longer any interest in enforcing them. But the strength of the posthumous fears remains unaltered—and the result attests most strikingly *their* debility and nothingness.

As another confirmation of this doctrine, let us remark the conduct of Jurors, when they administer a law which popular opinion, as well as they themselves, condemn as sanguinary and impolitic. How undisguised is the manner in which they infringe their oaths in order to elude the necessity of passing a capital sentence! In defiance of the most irresistible testimony, they find a man guilty of stealing under the value of forty shillings, and thus con-

sign him to the milder and more appropriate punishment. Whence comes it that the force of the oath, weighty and inflexible up to this point, suddenly dissolves into nothing and is shorn of all its credit? It is because the popular voice has ceased to uphold it. Public opinion gave, and public opinion has taken away; and all the sway, which superhuman expectations possess over human behaviour, is surreptitiously procured, from their coincidence with this omnipotent sanction.

Though it is popular opinion, or the desire of temporal esteem, which forms the actuating stimulus to religious observances, yet there are unquestionably instances in which such works have been faithfully performed without any prospect of consequent credit—nay, perhaps, in spite of bitter and predominant enmity. This is perfectly conformable to the general analogy of nature. For when the associations of credit have once linked themselves with any course of behaviour, by conversation with a peculiar class, by strong personal affection, or any other cause—when the feeling of self-respect has become attached to that course—an individual will not unfrequently persevere in it, though the harvest which he reaps may not actually gratify and realize the association. What is the motive which impels the friends of mankind to exert themselves in reforming a bad government? It springs unquestionably from the desire of esteem; first the desire of obtaining it, then that of deserving it, whether it is actually attainable or not. A similar anxiety, for veneration and influence over the sentiments of others, possesses the religionist, even when he both anticipates and encounters unqualified obloquy; and the fury of proselytism, which is inseparable from his tone of feeling, attests this beyond all dispute. Even the solitary penance of the monk springs from the very same principle; for the association of credit, when once deeply implanted, will govern human conduct, though there should be no prospect of realizing the hope which originally engendered it.

In addition to this it should be remarked, that no one can question the powerful influence exercised by superhuman inducements, in some peculiar cases. They sometimes produce insanity. But these are exceptions to their

usual impotence, and cannot be admitted as evidence against the general conclusion which we have just established.

As it has been demonstrated that all the efficacy of posthumous inducements is in reality referable to their alliance with public opinion—we at once discover the weakness of that plea by which these inducements were asserted to affect secret crimes, uncognizable by human laws. He who entertains confident hopes of perpetrating a misdeed without detection, will of course pay no regard to the popular voice. Nor will the fear of future pains, stripped of that auxiliary which alone renders it formidable, counteract a temptation to delinquency, when we see that it cannot prevail upon an Oxford student to undergo the smallest inconvenience. That the conduct of the former is guilty and injurious—the neglect of the latter, innocent—is a distinction which does not in the least vitiate the analogy. They are both under the special and solitary restraint, whatever be its power, which superhuman terrors impose. The one therefore may serve as an unexceptionable measure of the other. Nay, if anything, these fears ought to be more potent and effective in the case of the Oxford student, than in that of the secret criminal—inasmuch as the former has himself solicited and sanctioned their infliction, and has originated his own claim for their fulfilment.

But if posthumous apprehensions are inapplicable for the coercion of secret crime, it cannot be pretended that they are ever necessary—for human enactments will embrace all open and definable delinquency. To say that earthly laws do not actually perform this, is merely to affirm, that governments are defective and ought to be reformed.

RECAPITULATION.

The foregoing search into the nature and action of those posthumous expectations which unassisted natural religion furnishes, has evinced, I trust conclusively: 1. That in the absence of any authorized directive rule, the class of actions which our best founded inference would suggest as entitling the performer to post-obituary reward, is one not merely useless, but strikingly detrimental, to mankind in the present life; while the class conceived as meriting future

punishment, is one always innocuous, often beneficial, to our fellow creatures on earth. 2. That from the character and properties of posthumous inducements, they infallibly become impotent for the purpose of resisting any temptation whatever, and efficient only in the production of needless and unprofitable misery. 3. That the influence exercised by these inducements is, in most cases, really derived from the popular sanction, which they are enabled to bias and enlist in their favour.

✓ If these conclusions are correct, I think it cannot be denied, that the influence possessed by natural religion over human conduct is, with reference to the present life, injurious to an extent incalculably greater than it is beneficial. For if it ever does produce benefit, this must be owing to casual and peculiar associations in the minds of some few believers, who form an exception to the larger body. It is by no means my design to question the existence of some persons thus happily born or endowed. But it would be most unsafe and perilous to build our general doctrine on a few such instances of rare merit. We can only determine the general operation of these inducements, or the effect which they produce on the greatest number of minds, by analyzing their nature and properties, and by contemplating the result which these properties bring about in other known cases. This is what has been here attempted, and the inquiry has demonstrated that the agency of superhuman motives must in the larger aggregate of instances, produce effects decidedly pernicious to earthly happiness.

Having thus ascertained that the general influence of unaided natural religion is mischievous, with reference to the present life, I shall now proceed to expose the mischief more in detail,—to particularize and classify its various forms.

PART II.

CATALOGUE OF THE VARIOUS MODES IN WHICH NATURAL RELIGION IS MISCHIEVOUS.

IN enumerating the various modes in which posthumous expectations, when unaided by revelation, are productive of injury, it will be expedient to classify them under two heads:

1. Mischiefs accruing to an individual, separately considered.

2. Mischiefs not merely self-affecting, but contagious—diffusing themselves more or less widely throughout the society.

CHAPTER I.

Of the Mischiefs accruing to the Individual.

MISCHIEF I.—INFLICTING UNPROFITABLE SUFFERING.

THERE is an interminable variety in the particularities which characterize natural religion, amongst different nations of the globe. But its genuine spirit and tone is throughout the same, yesterday, to-day, and for ever. The same motive pervades all its votaries, whether in Hindostan or Mexico; and though it may impel them with greater strength and sovereignty in one climate or age, than in another, yet there is not the smallest difficulty in tracing its identity everywhere.

You wish to give proof of your attachment to the Deity, in the eyes and for the conviction of your fellow-men? There is but one species of testimony which will satisfy their minds. You must impose upon yourself pain for his sake; and in order to silence all suspicion as to the nature of the motive, the pain must be such as not to present the remotest prospect of any independent reward. I have already attempted to show, that this condition effectually excludes, and renders improper for the purpose, all suffering endured for the benefit of mankind. Mankind will measure your devotion to God by the amount and intensity of the pain which you thus gratuitously inflict upon yourself. Accordingly we see, that wherever the religious principle has been most predominant, and the counteracting hand of reason the most feeble, the mass of torture thus voluntarily imposed has been the most deplorable, revolting, and unprofitable.

Almost all the modes of pain, both physical and mental, seem to have been selected at different places and periods, for the purpose of demonstrating the magnitude and sincerity of the extra-human affections.

MISCHIEF II.—IMPOSING USELESS PRIVATIONS.

It is by the endurance of voluntary pain that a man can most invincibly attest his devotion to the Deity. But there seems to have been a gradual declension of genuine and fervid piety in many countries, or at least its intensity has frequently fallen short of this first-rate excellence. In this state of comparative relaxation, it suffices only to enforce upon its votaries the greater or less immolation of earthly pleasures, without being strong enough to produce gratuitous self-torture. Public opinion, less impassioned and less exciteable on behalf of the Deity, will not reimburse the sufferer for the endurance of stripes and mutilation. The motive to the latter being thus withdrawn, he contents himself with colder and more moderate testimonies of devotion. He claims the public esteem for a voluntary resignation of all his earthly pleasures for the sake of God. To impress this conviction in the minds of his neighbours, it is necessary that his self-denial should be above all imputation of temporal recompense—and, therefore, that it should be productive of little or no benefit to any beside the Deity.

Of all the sources of pleasure, physical and mental, few can be named which have not thus become, in a greater or less degree, objects of renunciation and abhorrence. The following acts of self-denial have all, on different occasions been placed in the catalogue of religious practices :—

1. Fasting.
2. Celibacy.
3. Abstinence from repose.
4. Abstinence from cleanliness, personal decoration, and innocent comforts.
5. Abstinence from social enjoyments and mirth.
6. Abstinence from remedies to disease.
7. Gratuitous surrender of property, time, and labour.
8. Surrender of dignity and honours.

It is unnecessary to remark that none of these privations inflict that acute and immediate agony, which results from the tortures before enumerated. Some of them, perhaps, may upon the long run occasion a larger aggregate of suffering, from their constant pressure and irritation. But I think it most important to notice, that out of the whole diminution of human happiness, which natural religion

originates, these intense self-inflictions constitute a portion almost infinitely small, when compared with that spreading system of privation and self-denial, which lays whole societies under contribution. Like a vicious government, the amount of its noxious effects ought to be estimated by the standing sacrifices which it extorts from the million, and which, though not strikingly oppressive in any individual case, swell into an unfathomable mass when multiplied into the countless host upon whom they are levied—not from the comparatively rare occurrences of concentrated horror and atrocity.

For public opinion, which merely encourages and provokes, by excessive admiration, the voluntary tortures of the enthusiast, acts as a compulsory force in extorting self-denial and asceticism. How it originally comes to demand and enforce these sacrifices, how each individual finds himself interested in exacting them from others, and thence obliged to pay them himself—I have attempted to elucidate in the foregoing part. The reason why the privations are thus required by the popular voice, while the self-inflictions are left optional, is because the earliest and most natural mode which occurs for conciliating the unseen misanthrope, is to consign to his use some gratifying and valuable possession. A man despoils himself of some piece of property, and bestows it to satisfy the wants of his Deity: The Ostiak, according to Pallas, takes a quantity of meat and places it between the lips of his idol—other nations present drink to the gods by throwing it out of the cup upon the ground; that is, by rendering it useless to any human being. It is these donatives, or acts of privation, which are originally conceived as recommending the performer to divine favour. Sacrifices of other sorts are subsequently super-added—and abstinences from certain enjoyments, on the plea of consecrating them to the Deity. Hence the public opinion is at the outset warmly enlisted in exacting self-denying performances for his benefit—a tone of thought industriously cherished by his ministers, as I shall hereafter explain.⁴

⁴ Self-imposed torture seems to be a subsequent refinement, devised by poor men who had no property to make donations, and whose time cannot be spared from the task of providing subsistence. In order to gain a living, as well as to make good his claim to the public admiration, the naked enthusiast must give manifestations of internal feeling

These considerations will serve to explain how the popular opinion has come to compel imperiously a certain measure of self-denial and privation, while it abandons self-inflicted penance to the kindlings of spontaneous enthusiasm.

MISCHIEF III.—IMPRESSING UNDEFINED TERRORS.

In treating generally of the efficacy of these posthumous anticipations in the character of sanctions, I have already indicated the mode in which they kindle up, on certain occasions, the most terrific feelings of which the human bosom is susceptible. Their operation is indeed most afflicting, in this point of view; it is always most cruelly preponderant upon those unhappy subjects whose title to exemption is the greatest—upon those who are already broken down by sickness and despondency—upon those whose only point of distinction from their neighbours is the actual calamity under which they suffer. This unfortunate casualty shatters the nervous system, enfeebles the judgment, and lays open the victim to the incursions of imaginary terrors, the extent and reality of which he cannot measure. The force, which religion thus casts into the already over-poised scale of misery, may be best appreciated by stating, that it frequently drives the sufferer into insanity. It augments also most fatally the horrors which usually environ the prospect of death.

But I need not again repeat what has been before urged, that these anticipations redouble their severity precisely at the time when no benefit can possibly result from it. They slumber during the period of health and comfort; they await the appearance of sorrow and disaster before they can obtain a congenial atmosphere. The mass of suffering which they thus occasion to almost every one, at different times of life, must be very considerable. There is no one who has not been occasionally assailed by illness, and by the

which may strike the beholder with awe. But utter destitution admits of no farther self-denial, and can elevate itself above others only by insensibility to pain, which appears to place it beyond the reach of human menaces. Hence the incredible sufferings which have been voluntarily endured by monks and fakirs, and the prodigious veneration which, among ignorant nations, they have seldom failed to inspire—a veneration which has doubtless on some occasions caused them to be practised even by the rich.

despondency which generally attends it, and few, therefore, into whose mind posthumous fears do not at times find admission, with more or less effect. We are warranted then in assuming the aggregate of misery introduced by them in this shape, as highly important in amount. That almost all persons, in whom religion is deeply and fervently implanted, are much harassed by these distressing apprehensions, may be asserted with confidence. But it is seldom that we can obtain a testimony at once so striking and authentic, of their power and extent, as the following account of the Spanish monasteries—written by a philosophical Spanish clergyman, and contained in a most eloquent and interesting work entitled, “Don Leucadio Doblado’s Letters from Spain”—(London, 1822).

“The common source of suffering [says this author, p. 252] among the Catholic recluses, proceeds from a certain degree of religious melancholy, which, combined with such complaints as originate in perpetual confinement, affect more or less the greater number. The mental disease to which I allude, is commonly known by the name of *Escrupulos*, and might be called *religious anxiety*. It is the *natural state of a mind perpetually dwelling on hopes connected with an invisible world, and anxiously practising means to avoid an unhappy lot in it, which keep the apprehended danger for ever present to the imagination*. Consecration for life at the altar promises, it is true, increased happiness in the world to come; but the numerous and difficult duties attached to the religious profession, multiply the hazards of eternal misery with the chances of failure in their performance, and while the plain Christian’s offences against the moral law are often considered as mere frailties, those of the professed votary seldom escape the aggravation of sacrilege. The odious diligence of the Catholic moralist has raked together an endless catalogue of sins, by *thought, word, and deed*, to every one of which the punishment of eternal flames has been assigned. This list, alike horrible and disgusting, haunts the imagination of the unfortunate devotee, till reduced to a state of perpetual anxiety, she can neither think, speak, nor act, without discovering in every vital motion a sin which invalidates all her past sacrifices, and dooms her painful efforts after Christian perfec-

tion to end in everlasting misery. Absolution, which adds boldness to the resolute and profligate, becomes a fresh source of disquietude to a timid and sickly mind. Doubts innumerable disturb the unhappy sufferer, not, however, as to the power of the priest in granting pardon, but respecting her own fulfilment of the conditions, without which to receive pardon is sacrilege. *These agonizing fears, cherished and fed by the small circle of objects to which a nun is confined, are generally incurable, and usually terminate in an untimely death or insanity."*

MISCHIEF IV.—TAXING PLEASURE, BY THE INFUSION OF PRELIMINARY SCRUPLES, AND SUBSEQUENT REMORSE.

Among the mischievous effects of religion in the present life, it is necessary to advert to those cases where the innocuous pleasure, which it proscribes, is still, in defiance of the mandate, enjoyed. In these circumstances its effect is not so great as absolutely to discard the pleasure, but only to damp and darken it; partly by introducing a previous doubt or opposition of motives; partly by obtruding, when the vehemence of the conquering passions has subsided, a mixture of shame and regret oftentimes insupportably bitter. Though religion thus does not entirely preclude our enjoyment, yet she compels us to purchase it by unhappiness both antecedent and consequent.

CHAPTER II.

Of the Mischiefs which Natural Religion occasions, not only to the Believer himself, but also to others through his means.

MISCHIEF I.—CREATING FACTITIOUS ANTIPATHY.

THE preparation in the human bosom for antipathy towards other men is, under all circumstances, most unhappily copious and active. The boundless range of human desires, and the very limited number of objects adapted to satisfy

them, unavoidably leads a man to consider those with whom he is obliged to share such objects, as inconvenient rivals who narrow his own extent of enjoyment. Besides, human beings are the most powerful instruments of production, and therefore every one becomes anxious to employ the services of his fellows in multiplying his own comforts. Hence the intense and universal thirst for power; the equally prevalent hatred of subjection. Each man therefore meets with an obstinate resistance to his own will, and is obliged to make an equally constant opposition to that of others, and this naturally engenders antipathy towards the beings who thus baffle and contravene his wishes.

Religion becomes a powerful coadjutor to these predisposing causes. Almost all her influence, as we have before explained, is derived from the system of rivalry and mutual compulsion which she introduces among mankind—each man recommending himself to the divine favour, by extorting from others the sacrifice of their inclinations on behalf of God. Hence arises an immense extension of the principle of antipathy; a number of factitious instances are created and subjected to its control, where it had before no application; and every fresh case of collision swells and aggravates the ill-will which sprang from the previous sources.

Those artificial antipathies, which are the peculiar growth and fruit of religion, assume a variety of shapes, and ramify widely throughout the field of human actions. The principal circumstances on which they fasten are reducible to these three:—

1. Unbelief in the existence of the Deity.
2. Non-observance of his will.
3. Mal-observance of his will.

1. Of all human antipathies, that which the believer in a God bears to the unbeliever is the fullest, the most unqualified, and the most universal. All considerations and feelings conspire to aggravate it; scarcely a thought suggests itself in mitigation of an offence so heinous. First, the mere circumstance of dissent, involving a tacit imputation of error and incapacity, and evincing that our persuasive power is not rated so highly by others as it is by ourselves, invariably begets dislike towards our antagonist.

By attempting to demonstrate that we are in error, he robs us in part of our influence and credit with mankind, from which we should have reaped many advantages had our doctrines remained unchallenged. Secondly, the feeling of hostility which the believer entertains towards the unbeliever, on the score of dissent, is incalculably more acute than that which the latter generally imbibes against him. For an excessive and inconsiderate credulity is indicative of a far weaker cast of mind than over-caution and incredulity. The former lays its possessor open to unceasing miscalculation and deception: the latter is on numerous occasions an entire preservative—scarcely ever a cause of suffering or of loss. Hence to him who takes the negative side of a question, the believer in the affirmative is more the object of contempt than of hatred, being regarded as simple, uninquiring, and easily duped or misled. Ridicule is the weapon which the unbeliever is most disposed to employ. On the other hand, the believer knows perfectly the light of inferiority in which his antagonist views him: and to be considered by others as silly and contemptible, occasions the most poignant and intolerable vexation, since the diffusion of this sentiment would altogether bereave us of the attention and favour of mankind, which is never conferred on those who are too feeble to deserve or repay it. Now the unbeliever is of course interested, like every other man, in spreading his own opinions, and will attempt this wherever it is practicable. We need not wonder therefore, that the believer manifests the bitterest aversion towards one who is endeavouring to impress mankind with the meanest estimate of his judgment and penetration.

All the strong passions of humanity are thus let loose against the unbeliever, and coincide perfectly with our anxiety to vindicate the divine majesty, by protecting it from neglect or insult on the part of any one else. The antipathy therefore is in this case swelled to the utmost pitch of intensity, nor is there a single consideration which can tend to repress or mitigate it. It dictates and furnishes a pretence for the gratification of an existing wish: it requires no troublesome subjugation of propensities, no surrender of actual enjoyments. It does not pledge the believer to any painful observances, in order to ensure

consistency between his sentiments and his conduct. He who neglects altogether the more costly modes of purchasing posthumous promotion, will be so much the more interested in magnifying the importance of belief and the heinousness of its opposite—because it is the only payment which he finds leisure to render. He must therefore represent it as so genuine and fervent, as to compensate the omission of other less easy services. But while he remains thus inactive, the only symptom by which the intensity of his belief can be appreciated, is the strength of his hostility towards the sceptic. Sentiments and acts of antipathy are thus the only proofs of allegiance which he can adduce, to place him on a level with the more scrupulous adherent. The hatred of the latter is of course ensured towards a disbelief, which would fain reduce his pious sacrifices to the level of ridiculous self-denial.

By all these conspiring motives the antipathy against atheists is engendered and provoked. Its diffusion too is most universal; for it is the single feeling in which the votaries of all systems of natural religion coincide, and direct their enmity to one common subject.

2. The antipathy against non-observance is inferior, both in extent and in vehemence, to that against unbelief. There is not the same array of feeling to stimulate it. First, the dissent is by no means so wide and radical as in the former case—indeed in many instances the difference of conduct may involve scarcely any variance of opinion at all, but is referable to the superior presence and urgency of human motives, which govern the actions of the believer, in defiance of his entire conviction that he is thereby forfeiting his chance of posthumous happiness. There is too, a greater hope of procuring conformity from the non-observant believer, than of planting the root of persuasion in the atheist. The former recognizes the same sovereignty and is enlisted in the same ranks: It seems only requisite to sound the word of command more loudly and impressively in his ears, in order to enforce the course of action which such an acknowledgement appears to entail. And the active religionist possesses ample means of thus disturbing and awakening a mind which suffers his fundamental principles to pass unquestioned. Whereas the atheist is

deaf to these sonorous and impassioned appeals; and must be won by the cool and measured advances of reason. Secondly, the observant believer does not feel himself to be an object of contempt with the non-observant. The latter is even interested in admiring and eulogizing acts of devotion which he will not imitate, since by this encouragement to the worship of others, he lightens the criminality of his own neglect.

For these and other reasons, the antipathy which religion generates against non-observance, is far from being so virulent as that against unbelief. Indeed, unbelief necessarily implies entire non-observance, with scarcely any prospect of future amendment. While almost every believer is occasionally and to some extent obedient in practice, or at least recognizes the propriety of being so at a subsequent period.

Notwithstanding, however, this comparative deduction, there still remains a very strong enmity towards non-observance, whether in the way of neglect or of trespass. Ascetics, reposing their title to the esteem of mankind on a voluntary abnegation of particular enjoyments, naturally endeavour to fasten obloquy on all who indulge in them; Of course the ascetics hate him whom their interest leads them thus to injure. Besides, there exists in their minds, (though on most occasions perhaps unknown to themselves) a secret apprehension that their uncomplying neighbour may at last prove correct in his calculation, and that all their own self-denial may be thrown away. Yet it is a risk which they themselves do not choose to brave; and they, therefore, would fain deter any one else from undertaking it. Both vexation and envy thus impel them to enforce this prohibition in the most effectual manner—that is by forestalling the post-obituary sentence, and encompassing the path of self-indulgence with all the evils which earthly abuse and hostility can devise. Their own mistrust of the result is evinced by their reluctance to allow to the sinner the unmolested profit or loss of his own temerity.

3. The third species of antipathy which remains to be noticed, is that upon the score of mal-observance—a feeling more virulent than the second species, though less so than the first. In proportion to the stress we lay upon our mode

of serving and obeying the Deity, will be the abhorrence with which we regard any rival system of worship. The ritual enjoined by the latter appears in our eyes a perversion of holy ordinances and institutions—frequently indeed we view it as the most flagrant impiety. We have ourselves always been taught to venerate a certain class of practices, as strictly agreeable to the Deity: But here is another nation who lay claim to his favour by very opposite performances, and mere natural religion unhappily furnishes us with no rational ground for preferring our own. Thus deficient in reasons, we naturally endeavour to deter people from demanding any, or even from whispering doubts which might call for a solution. Dogmatical assumption of our own tenets; the bitterest invective against all who question them; these are the expedients which have been universally employed for this purpose. The first secures to the doctrine the only support which circumstances admit, that is our own authority, derived from the credit we have acquired in other cases for judgment and penetration: The second terrifies the hearer from manifesting any difficulty of assent, by which he might himself incur the suspicion of partiality towards the enemies of our worship.

It thus appears that to him who entertains a strong conviction, for which he has little or no arguments to offer, an intense antipathy not only clings as the natural concomitant of dissent, but is even necessary as a weapon to intimidate unsatisfied hearers, and to stifle an inquiry which it would be difficult to ward off in any other manner. Unprepared for parley, he quickly resorts to that heavy artillery on which alone his reliance can be placed. Besides, the want of solid proof generates, in this case also, the same mistrust and apprehension of error as we have remarked in the former—and hence an equal aversion and hostility towards all men, who by adopting a different course of worship, excite these doubts in his mind.

The Pagan, who has from his earliest youth regarded his own ritual as exclusively conformable to the divine will, is disposed to imagine that the Hindoo, or any other nation whose religious practices are widely different, must be a candidate for the favour of some unseen Being distinct from the one whom he himself recognises. Natural religion

cannot demonstrate to him that there is no more than one God; and it would be presumptuous in him to assume it without proof. It is natural, therefore, that he should regard the foreign votary as the servant of a different God. But to see his own Deity not only neglected, but forsaken in behalf of another, is exasperating in the extreme; since it sets a limit to the influence of the former, and brings forward a rival sovereignty, from which a different distribution of favour and displeasure is to be expected. To attest, therefore, the rectitude of his own choice, and the superior might of his own Deity, he musters under the divine banners all the temporal force which he himself can command, for the purpose of crushing the rival worshippers, and terminating the influence of the unseen Being on whom they rely.

Mal-observance, like unbelief, includes non-observance; For the votary of a different system of religion will of course altogether neglect the ceremonies which I consider as the peculiar privilege of mine. But besides this, he braves my opinions, and heaps all the terms of moral reprobation on those practices which have always appeared to me the holiest and most essential: And there is scarcely a prospect of persuading him to adopt a conduct agreeable to my views, since we entertain so few common principles. It is natural, therefore, that I should detest him far more warmly than a simply remiss and disobedient fellow-believer.

Such is the antipathy which religion sows in the human bosom—and such are the principal shapes and varieties which it assumes. It is unhappily but too notorious, how fruitful this factitious hostility has proved in every species of destructive and sanguinary result. If we merely contemplate the fierce and merciless persecutions whose enormity has obtruded them upon the view of the historian, the misery thus introduced will appear sufficiently atrocious and revolting. But it is not by these extreme barbarities that the largest aggregate of suffering is occasioned. Very shocking instances of cruelty must be comparatively rare, from the desperation and inextinguishable thirst of vengeance which they are sure to provoke; and they are rather to be viewed as indicating the pitch of fury to which

the antipathy will occasionally stimulate mankind, than as aiding our measurement of its evil effects. These are to be estimated by computing the degree to which it is current and universal—the average force with which it acts at all times upon the bulk of the community. The very same principle, which at times breaks out into such ferocious excesses, is eternally at work, provoking innumerable manifestations of lesser hostility and ill-will—and these acts, although less injurious when individually considered, yet abundantly compensate this defect by their ceaseless recurrence and ubiquity.

It is not easy to estimate the total sum of evil introduced by this means—but when we contemplate the universal prevalence of religious hatred, and its daily and hourly interference with the line of human conduct—creating factitious motives for inflicting mutual evil, or withholding assistance—we shall be authorised in placing to its account no inconsiderable portion of the misery which pervades human society. The notorious and extensive influence of this antipathy is nowhere more forcibly marked than in the arguments concerning toleration. It is only within the last century, or a little before, that philosophy has ventured to broach the doctrine of toleration—that is, to recommend the propriety of tolerating, or *enduring*, the existence of persons entertaining different religious sentiments. Previous to this the understood principle, as well as practice, appears to have been, that no one could be expected to *endure* persons dissenting from him on religious subjects. Intolerance was then the universally acknowledged credential of sincerity, and, indeed, still remains so, wherever the preponderance of any one pious fraternity is so complete, as to render this non-endurance of dissenters at all practicable. It is chiefly the growing equilibrium between different sects which has engendered this mutual suspension of arms, and mitigated the fury of religious antipathy.

MISCHIEF II.—PERVERTING THE POPULAR OPINION — CORRUPTING MORAL SENTIMENT—SANCTIFYING ANTIPATHY—PRODUCING AVERSION TO IMPROVEMENT.

To ensure on the part of every individual a preference

of actions favourable to the happiness of the community, it is essentially requisite that that community should themselves be able to recognise what is conducive to their happiness—that they should manifest a judgment sufficiently precise and untainted to separate virtue from vice. The reason why the popular sanction is generally mentioned as an encouragement to good and a restraint upon bad conduct, is, because the major part of the society are supposed in most cases to know what benefits and what injures them—and that they are disposed to love and recompense the former behaviour, to hate and punish the latter. Now the efficacy of the public hate, considered as a restraint upon mis-deeds, depends upon its being constantly and exclusively allied with the real injury of the public—upon its being uniformly called forth whenever their happiness is endangered, and never upon any mistaken or imaginary alarms. Whatever, therefore, tends to make men hate that which does not actually hurt them, contributes to distort or disarm public opinion, in its capacity of a restraint upon injurious acts—for the public sentiment is only the love or hatred of all or most of the individuals in the society.

Now religion has been shown to create a number of factitious antipathies—that is, to make men hate a number of practices which they would not have hated had their views been confined simply to the present life. But if men would not naturally have hated these practices, this is a proof that they are not actually hurtful. Religion, therefore, attaches the hatred of mankind to actions not really injurious to them, and thus seduces it from its only legitimate and valuable function, that of deterring individuals from injurious conduct.

By this distortion from its true purpose, the efficacy of the popular censure is also weakened on those occasions when it is most beneficially and indispensably called for, as a guardian of human happiness. It is dissipated over an unnecessary extent of defensible ground, and thus becomes less efficient at every particular point; and it is deprived of that unity of design, and that reference to a distinct and assignable end, which marks all provisions exclusively destined for securing the public happiness. The different actions, to

which the public odium is attached, appear entirely unconnected and heterogeneous in their tendencies, and its application is thus involved in darkness and confusion.

Besides, hatred from one man towards another, is a feeling decidedly noxious, and no friend of humanity could suffer a single drop of it to exist, were it not required to prevent a greater evil—to obviate a still larger destruction of happiness. Unless sanctified by this warrant, the affection of hatred becomes nothing better than unredeemed malignity. It is by exciting and keeping alive this malignity, that religion enforces her causeless prohibitions; and, therefore her influence is injurious, not only by obstructing an innocuous gratification, but by all the malice and animosity which she plants in the human bosom in order to effect her purpose. A pernicious restriction is thus completed by still more pernicious means.

Though this is the most mischievous species of corruption with which the popular opinion can be infected, it is not, however, the only one. Its encouragements, as well as its restraints, may be seduced and misapplied. To promote its true aim, the public favour and esteem ought to be as inseparably and exclusively annexed to beneficial practices, as its hatred to acts of a contrary tendency. But religion never fails to conciliate a very material share of credit for practices, which, however meritorious with reference to a posthumous state, cannot be affirmed to produce any temporal advantage, and therefore would never have been esteemed had our views been confined to the present life. She thus draws off a portion of the popular favour, from its legitimate task of encouraging acts conducive to human felicity: She cheats the public into the offer of a reward for conduct always useless, sometimes injurious—and embezzles part of the fund consecrated to the national service, for bribery on the personal behalf of the monarch.

The popular sanction, thus misapplied both in its encouraging and restrictive branches, may become the unconscious instrument of evil to almost any extent. It may criminate and interdict any number of innocent enjoyments, like the eating of pork—or any acts however extensively useful, like loans of money upon interest. And it may heap profuse veneration on monastic stripes and self-denial, or

ratify the cruelty which persecution inflicts upon the unhappy dissenter.

But the public never praise an action without thinking it to deserve praise, nor blame one without believing it to deserve blame. This misdirection, therefore, of praise and blame naturally and necessarily introduces a false apprehension of what is praiseworthy and blameworthy. The practices thus erroneously imagined to merit their esteem become enrolled in the catalogue of virtues—those falsely conceived to merit their censure are represented as vices. Thus the terms of moral approbation and blame are deceitfully transferred to actions which a regard to the public happiness would not legitimate, and the science of morality is cast into utter darkness and embarrassment, by the removal of that light which an unity of standard could alone have imparted.

This misapplication of terms is farther confirmed by the language used in addressing or characterizing the Deity. We have already shown that the Almighty, though always actually conceived by natural religion as a capricious despot, is yet never described except in epithets of the most superlative and unmingled praise. The practices, which he is supposed to approve or delight in, will of course be characterized in language the same as that which is applied to himself. What he loves, will be laudable or virtuous—what he dislikes, blameable or vicious. To sacrifice the life of a human being becomes thus entitled to the name of a good action, when enjoined (or supposed to be enjoined) by the Being whom every one calls all-beneficent and perfect. It matters not what the action is—so it be agreeable to the just and good Creator, it must itself be necessarily just and good.

By these two concurrent causes, the science of morality has been enveloped in a cloud of perplexity and confusion. Philosophers profess, by means of this science, to interpret and to reconcile the various applications of approving and disapproving terms. But the practices on which the same epithet of approbation is bestowed, appear so incurably opposite, that it has been found impossible to reduce them to one common principle, or to discover any constituent quality which universally attracts either praise or blame.

The intellect has been completely bewildered and baffled in all attempts to explain the foundation of morality, or to find any unerring finger-post amidst a variety of diverging paths.

Hence the same misdirection of eulogy and censure, by which mankind have been deluded into favouring those who did them harm, and persecuting their benefactors, has given birth besides to another unhappy effect. The science of morality has become so doubtful and embarrassed, so destitute of all centre and foundation, as to lose all authority, and to be incapable either of rectifying current mistakes, or guarding against future ones. By the depravation of this all-important science, therefore, these misdirections not only secure themselves from all trial or scrutiny, but also ensure a similar success and immunity to any future prejudices. For the moralist, comparing the various actions to which praise or blame is awarded, and finding not the smallest analogy either in their nature or tendency, some being beneficial, others hurtful, others indifferent—is unable to range them under any common exponent, and accordingly sets them down in a catalogue one after another, as distinct and heterogeneous dictates of a certain blind and unaccountable impulse, which he terms a *moral instinct* or *conscience*. In cases where all men agree in approving or disapproving the same practice, he appeals to this universal consent as an invincible testimony to the justice of the feeling, and extols the uniformity of nature's voice: in cases where they differ, he compliments the particular sect or public, for whom he writes, as having singly adhered to the path of right and the dictates of nature, and bastardizes the rest of mankind as an outcast and misguided race.

The science of morality having been thus degraded into a mere catalogue of the reigning sentiments, without any trial or warrant, not only do the prejudices of to-day meet with adoption and licence, but a sanctuary is also provided for those of to-morrow. Morality cannot, in this state, either instruct or amend mankind, nor is it capable of progress or improvement, because the standard, by which alone its advance can be measured, has been cast away. To this stagnant and useless condition it has been reduced by the excessive misapplications of praise and blame, which

religion has to so large an extent occasioned, though other causes have doubtless contributed to the same end.

We should not omit to remark, that as all means of distinguishing right from wrong disapprobation is obliterated, every one naturally endeavours to license and sanctify his own private antipathies, by placing them to the account of religion. By an artful transfer of terms, he attempts to slip his personal dislike into the moral code, and to found thereon the character of being zealously concerned for the honour of God and the interests of virtue. If he can succeed in procuring a few allies, his antipathy becomes gradually diffused and legalized, and is worshipped as a dictate of the moral sense. But in order to obtain these partisans, he is compelled to offer some service in return ; and for this purpose he naturally stands forth as the champion of their antipathies, in the same manner as they second his. By this compromise, therefore, the whole band are leagued to endorse and accredit each other's enmities, and to vilify the actions which they dislike, as infringements of religion and of the law of nature. The less hurtful the action—the less real necessity can be alleged for the dislike—the more loudly will they be obliged to appeal to religion and the moral instinct, as their only chance of shelter from the charge of absurd peculiarity. Those antipathies, therefore, which are the least defensible on the score of public utility, are the most commonly put forward to be stamped and sanctified by religion, and to pass current under the denomination of laws of nature.

One consequence and manifestation of this principle is so important as to deserve particular notice. An aversion towards improvement is its decided effect—and where such a feeling previously existed, it is both aggravated in force, and hardened against all question and scrutiny.

The sequences and concatenation of phenomena, as presented to our senses, and subsequently compared and classified, form what is called *the course of nature*, supposed to be established by the Deity. All fresh facts, all acquisition and application of knowledge, introduce a change in these sequences, and therefore break in upon the laws of nature.

Now the laws of nature, conceived as they are to be the

arrangements of the Deity, acquire a character of supreme holiness, and to infringe them is supposed to be an impious defeat and counteraction of the divine will. The same being, indeed, who originally set them on foot, may suspend or over-rule them, if he will; but any interference for this purpose, on the part of man, is presumptuous and unwarrantable in the highest degree. To counteract the course of nature, and to oppose a bar to the designs of the Deity, are in fact synonymous phrases, and therefore all alterations in the course of nature are so many obstacles, daringly presented by feeble man against the designs of his creator.

Agreeably to this, the epithet *unnatural* indicates perhaps the most severe, aggravated, and relentless odium ever harboured in the human bosom. It is perfectly self-justifying, nor does the accused dare to call for any proof or testimony in support of the charge: it is also quite irresistible, and no plea can be heard in mitigation of its effect.

Now all successive discoveries and their application to fact, constitute so many alterations of the laws of nature. But no discovery is ever applied except for the purpose of augmenting human comfort—for there is no other motive to employ it. Consequently all augmentation of human happiness, by an improved knowledge of facts, is *unnatural*, or contrary to the laws of nature: that is, it is an impious counteraction of the designs of God. It naturally therefore becomes the object of the bitterest religious antipathy, and all practical improvement is thus pre-extinguished and stifled in the birth, by the sweeping epithet of *unnatural*.

It is vain to urge, that the fact falsifies these conclusions—that the promotion of human comfort, by means of an augmented knowledge of the passing phenomena, is never proscribed and regarded as opposite to the divine will, except in a few particular cases; while in the greater number of instances no one ever introduces the supposition. It is sufficient for my purpose to show that this effect is produced in a certain number of cases; more in some climates and ages, fewer in others—that practices conducive to human happiness have been branded and repelled simply on the ground of being *unnatural*. For this is satisfactory evidence that natural religion has a tendency to

engender an hostility to improvement; and that if the tendency does not manifest and realize itself in every particular instance, this is because other causes operate in counteraction of it.

The increase of light and wisdom throughout Europe has, indeed, happily tended to dispel this error, and to restrict the application of such an interdict against improvement to a comparatively small number of cases, wherein either peculiar prejudices, or injury to some powerful sinister interest, act with more than usual effect upon the antipathies of mankind. But still the interdict exists; and it is only the dissentient voice of public opinion which suspends its execution. For whenever sentence is passed against any particular mode of amelioration, it is always by virtue of the standing enactment against all—that is by accusations of contrariety to the laws of nature and the designs of the Deity; which would, if pursued consistently, prohibit all improvement whatever. And the only scheme for parrying such an accusation is borrowed from this inconsistency, and general non-execution of the enactment: “You do not object to an alteration of the laws of nature for purposes of human happiness, in such and such cases—Why awaken your sleeping restriction here, and attach so much criminality to this particular plan, simply on the score of being unnatural or an innovation upon the laws of Nature?”

There has been a period when religion was arrayed to silence the discoveries of Galileo, and to prohibit physical and medicinal improvements, such as the emetic. If such sentences are no longer hazarded now, it is not from any change in the spirit and tendency of the law, but from its progressive weakness and loss of dominion, the natural result of the diffusion of knowledge.

MISCHIEF III.—DISQUALIFYING THE INTELLECTUAL FACULTIES FOR PURPOSES USEFUL IN THIS LIFE.

There are several modes in which religion tends to unfit the mental faculties for the promotion of the mere temporal happiness of mankind. Considered with reference to a posthumous existence, indeed, which divines justly regard as far more important than the present, her influence may be highly beneficial in qualifying us for the lot there to be

awarded. But these magnificent promises cannot be realized without a transient loss on this preparatory state—and amongst all the modes in which this loss is incurred, few are more serious than the disqualification of our intellects.

SECTION I.—*Disjoining Belief from Experience.*

It has been remarked in the early part of this volume, that the primary and unsolicited provision of nature consists for the most part of pains and wants—that the means of soothing the one and satisfying the other, were the gradual and toilsome discovery of man, even now far from being perfected—that consequently all pleasure, and exemption from suffering, was the fruit of knowledge. If a man does not know the way to avoid or to remedy an impending pain, he will be compelled to suffer it: if he does not know the way to procure any particular pleasure, the pleasure will not seek him of its own accord, and he will, therefore, be obliged to forego it.

But all our knowledge with regard to pleasure and pain is derived from experience. To know the way of procuring the former and escaping the latter, some one must have made trial. Knowledge can only be instrumental for these purposes, when it is the statement and summary of the trials which have thus been made.

Now knowledge consists in the belief of certain facts: all useful knowledge, therefore (that is, all which can be instrumental in multiplying the enjoyments and diminishing the sufferings of this life), consists in believing facts conformable to experience—in believing the modes of producing pleasure and avoiding pain to be, in each particular case, such as actual trial indicates. It is on the conformity of belief with experience, therefore, that the attainment of pleasure and the prevention of misery, in every case without exception, is founded.

Such is the inestimable value, indeed, the essential and overwhelming necessity, of belief conformable to experience. Belief unconformable to experience is not applicable, in any degree, to the removal of unhappiness, or the production of enjoyment; and consequently is altogether useless. The whole utility of belief, therefore, consists in this conformity.

To maintain and extend the alliance between belief and experience will thus appear to be incalculably the most important object of human endeavour. Whatever promotes such an attempt, must be considered as a most valuable instrument for the augmentation of happiness ; since this is the only means by which it can be augmented. And conversely, whatever tends to disjoin belief from experience, must be regarded as crippling, to a greater or less extent, the sole engine by which our preservation even from incessant suffering is ensured, and tending to disqualify our mental faculties for purposes of temporal happiness.

Such is the injurious effect (with reference to the present life) of disjoining the two—or of making us believe anything uncertified by experience. Whoever acts upon such an uncertified persuasion, or induces any one else to act upon it, can never attain any benefit by it, and may occasion very serious evil. Indeed all human errors are only so many manifestations of this unsanctioned belief.

As all real facts, or instances of belief thus certified, mutually hang together and tend to support each other, so that he who acquires any one is thereby assisted and placed in a better condition for the acquisition of more—in the same manner all errors, or uncertificated persuasions, though heterogeneous and discordant one with another, yet conspire all to one common end, that of deranging the conformity of belief to experience. Each separate instance of this want of conformity engenders others, and renders the mind less likely to keep close to a conformable belief upon other occasions. Every particular instance, therefore, besides the miscalculations to which it may directly and of itself give birth, is injurious by the general habit of derangement which it creates in the mental system—by preparing the intellect to be at other periods the recipient of useless or uncertified belief. You cannot impress upon the mind one such persuasion, without rendering it liable to the incursions of others to any extent.

He, for example, who reposes faith in the accounts of Lilliput and Brobdignag, must have a mind so constituted, as to believe on many other occasions without the warrant of experience. We should mark our sense of this by attaching less credit to his opinions, and describing him under appro-

priate epithets of inferiority. We should readily admit that such a peculiarity of mind comparatively incapacitated him from directing either his own conduct or ours to any salutary purpose. If this disposition to uncertified belief spreads still farther in his mind, and manifests itself in a considerable number of cases, we then term it insanity. His belief then becomes not only useless for our guidance, but imminently dangerous and threatening to our security. Accordingly we do not permit it to direct even his own actions, but immediately subject his body to a foreign superintendence.

Such are the unhappy consequences produced by a deviation of belief from experience. This disjunction, when frequent and embracing subjects of importance, constitutes insanity, and renders an individual utterly incapable of providing for his own happiness, as well as a destructive foe to that of his fellow-creatures: When rare and confined to trifling subjects, it causes a proportionably slighter depravation of his mental faculties, but never fails to impair in a greater or less degree, his competency of judging for the welfare of himself and of others. It is most important to keep in mind, that madness with all its dreadful consequences is only a total divorce of belief from experience—that all intellectual weakness is the fruit of this divorce to a lesser extent—and that every separate instance in which such a disjunction is effected, by whatever cause it may be, lays the mind open to the attacks of other disjoining causes; thus creating a disease which is sure to spread.

Having thus exposed the enormous evils which result from the disjunction of belief from experience, I proceed to show the modes in which natural religion inevitably causes such a disjunction.

1. The fundamental tenet of natural religion is, the persuasion that there exists a Being, unseen, unheard, untouched, untasted, and unsmelt—his place of residence unknown—his shape and dimensions unknown—his original beginning undiscovered. This is what the negative terms *invisible*, *omnipresent*, *infinite*, and *eternal*, imply.

Now the very description of this Being obviously shows, that no one can ever have had any experience of his existence. To have experience of anything external to ourselves,

supposes certain concomitant circumstances—the exercise of one of our senses—a definite time and place of existence—a particular size and figure. Without these concomitants, experience cannot take place, and the sublime conception of infinite attributes at once negatives them all. You cannot state that God is in a particular place, because that would imply that he was not in any other place—since the only intent of particularization is to exclude everything except that which is specified. Our persuasion, therefore, of God cannot be founded upon experience.

The very basis, therefore, of natural religion, is an article of *extra-experimental belief*, or of belief altogether unconformable to experience. It has a tendency, thus in the very outset, to introduce that mental depravation which we have demonstrated to be the inevitable result of this species of belief. I do not here intend to assert that the doctrine in question is untrue, but merely to point out the peculiarity of the evidence on which it rests—that it is a persuasion uncertified by experience, and, therefore, vitiating the intellect so far as regards mere temporal interests. Whether true or untrue, in either case, the very nature of the belief occasions it to produce the same disqualifying effect upon the mental faculties.

2. Our belief with regard to the original creative power of God, and the design with which it was exerted, is alike uncertified by experience. No man has ever had experience of the commencement of things: and, therefore, whatever account we admit as to their origin, our belief must be *extra-experimental*. If the interests of the present life require that our persuasion should never deviate from experience, they also require that we should not attempt to account for the original commencement of things—because it is obvious that experience must be entirely silent upon that subject.

The belief in design, as dictating the exertion of this creative power, is alike *extra-experimental*. Experience exhibits to us design only in man and animals; and in them its effects are confined to the displacement of matter, and the admotion or amotion of its particles to and from each other. This is all which experience shows us to be produced by design; and we cannot believe that it produces

any other effects, without falling into the disease of *extra-experimental* persuasion.

Besides, to say that the human body, or the universe, was brought into the order which we now see, by design—this supposes a previous state in which the parts of the human body were lying about in a heap—fibres in one place, brain in another, membranes and muscles in a third—without the least tendency to combine together and form a whole. Design presupposes the existence of substances endued with certain properties, and can only be pretended to account for their transition, from one relative situation called *confusion*, to another called *order*. But has anyone ever had experience of this preliminary chaos?

Again, an omnipotent will is something which is by its very nature placed beyond the reach of experience. Were we permitted indeed to introduce the supposition of omnipotence, this would materially facilitate the explanation of all other difficult points, as well as that of the original of things. Anything will solve the difficulty, provided you are allowed to render it omnipotent. Instead of supposing a *will* which can perform everything, you may suppose *fire* or *water* which can perform everything, and all results are equally well explained. Why was Epicurus forced into such absurdities in attempting to explain all phenomena by the doctrine of atoms, or Thales by that of water? From the difficulty of reconciling these phenomena with atoms or water of limited power and properties. Had they dared to discard openly these limitations, the difficulty of the task would have vanished. When the fairy with her all-powerful wand has once been introduced, it is as easy to explain the sudden rise of a palace as of a cottage.

These considerations, we think, clearly demonstrate that all belief in design, as having been originally instrumental in forming the world, is completely *extra-experimental*.

3. Nor less so is the belief that the Deity will in a posthumous existence distribute to us certain pleasures and pains. It is plain that whatever be the evidence on which this persuasion is built, experience teaches us nothing about it.

4. Another case of *extra-experimental* conviction implanted by religion is, the belief of God's agency in the

present life. As it is in this case that the mischiefs flowing from such uncertified belief assume the most determinate and palpable shape, we shall examine it at greater length than the rest.

You believe that the Deity interferes occasionally to modify the train of events in the present life. Your belief is avowedly unconformable to experience, for the very essence of the divine interposition is to be extrinsic and irreconcilable to the course of nature. But mark the farther consequences: You dethrone and cancel the authority of experience in every instance whatever; and you thus place yourself out of condition to prove any one fact, or to disprove any other.

What steps do you take to prove that a man has committed murder? You produce a witness who saw him level his pistol at the head of the deceased, heard the report, and beheld the man drop. But this testimony drives all its persuasive force from the warrant and countersign of experience. Without this it is perfectly useless. Unless I know by previous experience that eye-witnesses most commonly speak the truth—that a pistol ball takes the direction in which it is levelled and not the opposite—I should never be convinced, by the attestation of these particular facts, of that ulterior circumstance which you wish me to infer. To complete the proof, two things are requisite; the previous lessons of experience, and the applicability of these lessons to the present case. But no such application can take place unless the course of nature remains the same as it was before. A gratuitous assumption must therefore be made, that the course of nature continues inviolate and uniform. But to assume this in every particular case, is to assume the universal inviolability of the laws of nature.

Whoever therefore believes these laws to be violable at the will of an incomprehensible Being, completely debars himself from the application of all previous experience to the existing fact. If they are violable at all, why may they not have been violated in the case before us? No imaginable reason can be assigned for this—because in order to constitute a reason—in order to make a complete proof—you must presuppose that uniformity of the course of nature which your reason is intended to vindicate.

Whether you assume her laws to be violable or inviolable, you must adhere to the same assumption throughout. If you say that they are inviolable, you cannot maintain them to be infringed in any particular case—if you hold that they are violable, you cannot assume them to be permanent and uniform in any one case.

If therefore you believe the agency of an incomprehensible Being in the affairs of this life, your belief is such as would, were it pursued consistently, exclude you from all application of past experience to the future—and therefore incapacitate you from contriving any defence against coming pains, or any modes of procuring pleasures.

Again, this belief also precludes you from applying the process of refutation, and thus from detecting any falsehood whatever. For no assertion can ever be refuted except by offering proof of some other assertion, and then appealing to experience for a certificate of the incompatibility of the two. A man clears himself from an alleged crime by proving an alibi. The whole virtue of this defence rests upon the presumption, that experience attests the impossibility of performing a certain act at more than a certain distance. If it is suggested that the laws of nature are violable—if it is questioned whether the previous lessons of experience are applicable to this particular case—then, inasmuch as no evidence of their applicability can be adduced, the process of disproof is at once nullified. The inviolability of the course of nature must be gratuitously assumed as the root from which all incompatibility between any two assertions, and therefore all proof of the falsehood of either, is derived.

Hence the belief of an unseen agent, infringing at pleasure the laws of nature, appears to be pregnant with the most destructive consequences. It discredits and renders inadmissible the lessons of experience : It vitiates irrecoverably the processes both of proof and refutation, thereby making truth incapable of being established, and falsehood incapable of being detected : It withdraws from us the power of distinguishing the true methods of procuring enjoyment or avoiding pain, from the false ones ; and plunges us into the naked, inexperience and helpless condition of a new-born child—thereby qualifying us indeed for

the kingdom of heaven, but leaving us wholly defenceless against the wants and sufferings of earth.

I do not indeed affirm that this *extra-experimental* belief has actually produced—what if adhered to with consistency, it ought to produce—an entire mistrust of all experience. The necessity for a general reliance on the stability of nature has been too powerful to be resisted—and therefore mankind have shuffled off the dangerous consequences by their usual resort of inconsistency—sometimes assuming the lessons of experience as supreme and incontestable, sometimes disregarding them as arbitrary and variable at the will of an incomprehensible Being. But though this *extra-experimental* belief has been thus only partially entertained and confined to a corner of the mind, its pernicious effects have still been very great—and I shall proceed to specify an instance of the manner in which it tends to disable the intellect, and to expunge all the criteria of truth and falsehood.

It is not many years since witchcraft was recognized and prohibited as an actual offence, and persons tried and condemned for committing it. To attempt a defence against such an accusation was obviously impracticable. The essence of the crime consisted in an alliance with demons, who could at pleasure interrupt the course of nature; and therefore it availed nothing though the defendant could prove an unexceptionable alibi. He might, by the assistance of his hyperphysical ally, have ridden a hundred miles through the air in as many seconds. Nor was it possible to determine what facts were or were not inconsistent with commission of the crime; or consequently, to adduce anything like exculpatory testimony. The defendant was thus laid completely at the mercy of the favour or aversion of judges unguided by any rational inference, as may be seen by consulting any of the old trials for this imaginary offence.

All the unhappy victims who have been condemned for witchcraft may be considered as one instance of the wretched effects of *extra-experimental* belief; as sacrifices occasioned by that thorough depravation of the intellect, and erasure of the distinction between truth and falsehood, which it is the nature of this belief to effect whenever it reigns within the mind. The number of men thus condemned publicly

has been far from inconsiderable—not to mention those who have undergone private persecution and suspicion from their neighbourhood; a body probably more numerous, though less exposed to notice.

As this persuasion utterly disqualifies mankind for the task of filtering truth from falsehood, so the multitude of fictitious tales for which it has obtained credence and currency in the world, exceeds all computation. To him who believes in the intervention of incomprehensible and unlimited Beings, no story can appear incredible. The most astonishing narratives are exempted from cross-examination, and readily digested under the title of miracles or prodigies. Of these miracles, every nation on the face of the earth has on record, and believes thousands. And as each nation disbelieves all except its own, each, though it believes a great many, yet disbelieves more. The most enthusiastic believer in miracles, therefore, cannot deny that an enormous excess of false ones have obtained credence amongst the larger portion of mankind. The root of all these fictions, by which the human intellect has thus been cheated and overrun, is the *extra-experimental* belief of the earthly interference of God; and the immense evil arising from such a deception is another of its pernicious results.

Nor should we omit, in reckoning up these results, the universal prevalence of the expectations arising out of this belief in particular interpositions of the Deity. Entertaining this conviction, a man is of course led to frame some conjecture on what occasions the unseen Being will be likely to interpose. He naturally selects those, on which his anticipations are most at fault, and when he is most ignorant what real event is to be expected. In this state the experimental belief ceases to suggest any predictions, and the *extra-experimental* of course steps into the vacant chair and assumes the rod of prophecy. Hence, instead of adopting the most skilful expedients which a comparison of the known phenomena would suggest, his behaviour will be determined either by some accidental and incomprehensible peculiarity of circumstance, or by certain deceitful and irrelevant conceptions of the divine attributes.

It would be both useless and impracticable to enumerate all those trifling casualties which have, in one place or

another, been regarded as manifestations of God's interference. The flight of birds—the neighing of a horse—the drawing of lots—and a thousand other such inconsequential incidents have been consulted as instructors and guides to human short-sightedness, and as interpreters of the divine decrees. To disregard one of them was considered as an act of impiety, and contempt of a special warning. The phenomena thus selected have been infinitely various—the doctrine and principle exactly similar throughout.

To illustrate the depravation of judgment produced by these expectations of divine interference, it is important to remark their effect when recognized and acted upon in the system of judicature—a province wherein, as it demands the most complete preparation and use of the faculties, all mistaken principles are the most prominently displayed.

The trial by ordeal has been most universally approved and established, in the infancy at least of all societies, from Hindostan to America. Unable to discover satisfactory criteria of guilt and innocence, by a just comparison of conflicting testimony, mankind have endeavoured to extricate themselves from the uneasy feelings of doubt, by a blind reliance on the *extra-experimental* belief. In confidence that the point would be decided for them, they have abandoned the task of determining it for themselves, and have been contented with executing what they regarded as the divine verdict. Now certainly if the Deity is ever in any case believed to interpose, this is the occasion of all others when his interposition would be most naturally and most rationally anticipated, supposing him truly benevolent. Were a chief-justice animated by genuine benevolence, his feelings would not permit him to remain inactive, when his efforts might extricate the innocent from impending punishment, or expose the shifts of the guilty.

But though this is by far the most defensible case in which divine interpositions have ever been looked for, we hear it unanimously treated, by writers of the present day, as a symptom of the most pitiable imbecility—as utterly incompetent to elicit the truth—and as the most cruel distortion of penal judicature. The miserable effects which a belief in the temporal agency of God has produced, in this case alone without mentioning others, are incalculable.

Reflect on the number of persons whom the issue of the ordeal has consigned to unmerited torture, or protected from an appropriate penalty—on the bar thus opposed to all improvement in the judicial process—on the extension of this method of lottery to all other matters of doubt, which its reception in the sacred field of judicature would countenance: Consider too that these evils still infest perhaps the larger portion of the globe, and all the uninstructed nations who inhabit it. This immense mass of misfortune flows from one particular application—and that too the most rationally deduced from the current hypothesis—of the belief in the temporal interference of the Deity.

The example which has been just cited is of great value, because we there behold the belief in superhuman agency applied to a distinct and particular case, and thence producing consequences which it is impossible to shuffle over or evade. These consequences are universally admitted to be most pernicious, in the instance of ordeal—and similar effects cannot fail to result, whenever the same belief is elsewhere entertained and applied to action. He who feels confidence that the Deity will decide for him a particular point, or realize any other object of his wishes, will of course take no pains to form his own opinion, or to attain the object by his own efforts. Reliance on foreign aid, if perfect and full, supersedes the necessity of self-exertion altogether—and if the person thus relying puts himself to any trouble whatever, it is only because his confidence is not perfect. A man sits still while his servant is bringing up breakfast, because he feels quite confident that his desires will be attained without any trouble of his own. The belief therefore in super-human interference cannot fail, when firmly and thoroughly entertained, to produce an entire abandonment of the means suggested by experience for human enjoyment. If the Almighty declares against us, our efforts are fruitless—if in our favour, they are unnecessary: In neither case therefore have we any motive to make efforts.

Expectation of effects on the ground of the divine attributes must thus, so far as it is really genuine and operative, extinguish all forecast, and cut all the sinews of human exertion. It must produce this effect whenever it produces

any at all; and if such a result is not actually brought about, it is only because the nullity of the expectation has been in part exposed, and its influence proportionally weakened.

Any doctrine may be stated as having a tendency to introduce those consequences which are consistently and legitimately deducible from it—and while the doctrine is maintained in any one instance, there is always a chance that it will be extended to every other. He who looks for superhuman aid in one instance, is at least liable to do so in another. On this ground it is important to notice the mischievous tendency of these expectations, in a case where it would not be easy to trace home to them any palpable and specific evil consequences, such as those of the ordeal.

Expectations from the divine attribute of *pliability* have been and still continue universal. At least this is the foundation of the frequent prayers which are put up to Heaven for different species of relief—built, not upon the benevolence of God, for then his assistance would be extended alike to all the needy, whether silent or clamorous; but upon his yielding and accessible temper, which though indifferent if not addressed, becomes the warm and compliant partizan of every petitioner.

Now these expectations, supposing them well-founded and firmly entertained, cannot fail to introduce complete inactivity among the human race. Why should a man employ the slow and toilsome methods to which experience chains him down, when the pleasure which he seeks may be purchased by a simple act of prayer? Why should he plough, and sow, and walk his annual round of anxiety, when by the mere expression of a request, an omnipotent ally may be induced to place the mature produce instantly within his grasp? No, it is replied—God will not assist him unless he employs all his own exertions: He will not favour the lazy. In this defence however it is implied, either that the individual is not to rely upon God at all, in which case there is no motive to offer up the prayer—or that he is to feel a reliance, and yet act as if he felt none whatever. It is implied, therefore, that the conduct of the individual is to be exactly the same as if he did not anticipate any superhuman interference. By this

defence, you do indeed exculpate the belief in supernatural agency from the charge of producing pernicious effects—because you reduce it to a mere non-entity, and make it produce no effects at all.

If therefore the request is offered up with any hope of being realized, it infallibly proves pernicious, by relaxing the efforts of the petitioner to provide for himself. Should he believe that God will, when he himself has done his utmost, make up the deficiency and crown his views with success; the effect will be to make him undertake any enterprises whatever, without regarding the inadequacy of his means. Provided he employs actively all the resources in his power, he becomes entitled to have the balance made up from the divine treasury. “God never sends a child” (says the proverb) “but He sends food for it to eat.” What is the natural inference from this doctrine, except that a man may securely marry without any earthly means of providing for his family, inasmuch as God will be sure to send him some?

What preserves the evil effects of this right of petitioning, which man is asserted to possess over the Deity, from the notoriety and exposure to which the consequences of the ordeal have been subjected—is, the very obscure and indistinct class of human wishes to which its exercise has gradually been restricted. Earthly discoveries and preparations are more commonly preferred for the satisfaction of our usual wants; nor are men so well contented with the provision which their heavenly Father has made for them, as to resign entirely all thought for the morrow. Some persons pray for their daily bread, it is true, and some do not; but every one without exception either works for it himself, or secures the services of some of his fellow-men. He who would wish to acquire a fortune or to learn a language, and contented himself with praying that God would transfer stock to him, or pour down the gift of tongues, would be derided as insane. If you ask a man whether he would rely upon petitions to Heaven for the accomplishment of any definite earthly wish, the incongruity of the means to the end appears then so glaring, that he thinks you are ridiculing him, although the language employed may be the gravest and most decorous. He will

pray either for objects which he is sure to obtain with or without prayer, such as his daily bread—or for objects which he cannot tell whether he obtains or not, such as that the kingdom of God may come, that His will may be done in earth as it is in heaven, &c., or for vague and indeterminate gifts, the fulfilment of which is not to be referred to any distinct time, such as health, longevity, good desires, &c. It is only by its results being thus kept in the dark, that the inefficiency of prayer is protected from exposure.

I have thus analyzed the several species of extra-experimental belief which religion begets in the mind, consisting in the persuasion of the existence, creative function, and agency both here and in a future life, of a supernatural Being. I have endeavoured to demonstrate from the very nature of this belief, that it cannot fail to disqualify the intellect for the pursuit of temporal happiness, more or less in proportion to the extent in which it is entertained. For as all our pleasure and all our exemption from want and pain, is the result of human provision—as these provisions are only so many applications of acquired knowledge, that is, of belief conformable to experience—it follows, that the whole fabric of human happiness depends upon the intimate and inviolable union between belief and experience. Whatever has the effect of disjoining the two, is decidedly of a nature to undermine and explode all the apparatus essential to human enjoyment—and if this result is not actually produced, it is only because the train laid is not sufficiently extensive, and is confined to the outworks instead of reaching the heart of the fortress. So far as any result at all is brought about, it is an advance towards the accomplishment of this work of destruction. And as every separate case, in which extra-experimental belief finds reception in the mind, paves the way for others, any one disjunction of belief from experience has a tendency to produce their entire and universal discordance.

MISCHIEF IV.—SUBORNING UNWARRANTED BELIEF.

Akin to the foregoing mischief, though not precisely identical, is the distorting influence which religion exercises, by numbering belief in the catalogue of duties and merits—

disbelief in that of crimes and offences. It has been already explained how, in the divine classification of human actions, disbelief is characterized as the most heinous of all trespasses, and belief as very meritorious, though not to a corresponding extent. The severest penalties are supposed and proclaimed to await the former; very considerable rewards to follow the latter.

So far as these threats and premiums are operative at all, the effect must be, to make a man believe that which he would not naturally have believed, and disbelieve that which he would not naturally have disbelieved. But in the natural state of things, a man assents to that which he thinks is supported by the best evidence—dissents from what appears to be refuted by the best evidence. Under such circumstances, there is nothing to guide his choice except the evidence. By holding out rewards to the former, and punishments to the latter, you introduce a lateral and extraneous force, which either wholly shuts out, or partially disturbs, the influence of the respective proofs. So far, therefore, as the reward is at all effective, it entices him to believe upon inadequate proof—so far as the punishment acts, it deters him from disbelieving upon adequate disproof.

Consult the analogy of common life. Is not the offer of a bribe to the judge universally reprobated, as disposing him to wrong and unauthorized decision? Is not a threatening letter to jurors recognized as tending to the same end? You might indeed allege, that the judge was honest, and the jurors intrepid; and, therefore, that bribe and threat were both ineffectual. But it would be impossible to controvert the pernicious tendency of these methods, supposing them to have any influence at all upon the verdict.

The religious premium offered for faith, tends in like manner to corrupt the judgment of an individual, and to foist in, by means of his hopes and partiality, a belief which unbiassed reason would not have tolerated. The penalties denounced against unbelief co-operate most powerfully, by enlisting his fears in behalf of the same self-deceit or hypocrisy.

There are, indeed, limits to the influence of rewards and punishments in thus engendering factitious belief. No man can, while this book is in his hand, make himself believe

that it is not there. But though he cannot thus drive off sensation at pleasure; yet in matters where the truth does not obtrude itself so immediately, but must be gathered from various and wide-spread fragments of evidence, he can withdraw his thoughts from some, and fasten them upon others, almost to an unlimited extent. Hope and fear, constitute a motive for this undue preference; and his mind gravitates almost unconsciously towards the gainful side, as it shrinks from the terrors of the opposite prospect. He dwells on the positive proof of the promising doctrine, and sends his invention out in quest of additional reasons: while the negative is never permitted to occupy his attention for an instant. No wonder that the former, by thus exclusively absorbing the mind, assume a disproportionate value and magnitude, and appear irresistible, merely because nothing of an opposite tendency is allowed to join issue with them.

Such are the unjust and distorted movements of the intellect, which an interest in the result generally produces; and which the rewards and punishments respectively attached to belief or disbelief, must of course contribute to produce also.

This sort of reward, indeed, operates as a direct bounty upon credulity—that is, upon belief unsupported by sufficient and self-convincing evidence. The weaker the evidence, the greater is the merit in believing. This follows irresistibly. For if it is necessary to encourage belief by an artificial bounty, it would be useless to apply this stimulus to any doctrine which would of itself command the assent of mankind. The bounty must go where it is most needed; that is, to the support of doctrines which have little or no support of their own—and the largest slice of it to those which require the greatest encouragement, and would stand the least chance of being credited without it. Hence the less reason there is for receiving the doctrine, the larger share of merit will be awarded to the believer; and the tendency of the religious premium is thus to give birth to the most sweeping and indiscriminate credulity.

When assent or dissent has thus become a question of profit and loss, and not of reason, the believer is interested in bringing into contempt the guide whom he has deserted. He accordingly speaks in the most degrading terms of the

fallibility and weakness of human reason, and of her incapacity to grasp any very lofty or comprehensive subject. It thus becomes a positive merit to decide contrary to reason, rather than with her.

But, with regard to provision of pleasure, and escape of pain in the present life, reason is admitted to be our only safe director. Whatever, therefore, throws discredit upon her, or makes mankind neglect or mistrust her decisions, places the mind in a state less likely to discern and follow the true path of human happiness. The rewards and punishments, which religion affixes respectively to belief and unbelief, have the most direct tendency to this state of blindness and confusion. They cannot fail to engender a habit of credulity; as well as a reluctance to examine, and an inability to poise, conflicting testimony. Of all mental qualities, this credulity is the weakest and most fatal, rendering a man an easy prey to deceit and error, and thereby exposing him to incessant disappointment and loss.

Suppose government were to offer large rewards to all who believed in witches, or in the personality and marvellous feats of Hercules or Jack the Giant-killer—and to threaten proportionate punishments to all disbelievers. No one would question that these offers and threats, if they were at all effective, would contribute to produce a general perversion of intellect—and that they would mislead men's judgments in numerous other cases besides that one to which they immediately applied. Error, when once implanted, uniformly and inevitably propagates its species.

Precisely the same in all cases, is the effect of erecting belief into an act of merit, and rendering unbelief punishable. You either produce no result at all; or you bribe and suborn a man into believing what he would not otherwise have believed—that is, what appears to him inadequately authenticated.

MISCHIEF V.—DEPRAVING THE TEMPER.

That natural religion depraves the temper, and renders it infinitely less efficacious to the production of general happiness, has been shown in the preceding Sections;

inasmuch as it has been proved to engender virulent antipathies among mankind, or direct inclinations to harm each other. I propose to exhibit under the present head a farther deterioration of temper, referable to the same source; which does not announce itself in such palpable and violent injuries as the direct antipathy occasions, though its effects in corrupting the intercourse of life are most real and serious.

It may be asserted as a broad and general truth, that whatever curtails the personal comfort and happiness of any individual, disqualifies him to an equal extent from imparting happiness to his fellow-creatures; and not only thus much, but even disposes him to reduce, if possible, their quota of enjoyment to a level with his own. All the privations and misery, therefore, which religion inflicts upon an individual, extend through him to all those with whom he is placed in contact, and form a deduction from their happiness no less real and positive. Every particular species of private mischief enumerated in the preceding chapter, is the parent of a train of misfortunes among the small fraternity with which he is connected, by the unsocial and malevolent tone of mind which it inevitably generates in him.

There is also another mode in which religion still more effectually depraves the temper. The fitful and intermittent character of its inducements, incapable of keeping a steady purchase upon the mind, and daily overborne by urgent physical wants—the endless and almost impracticable compliances exacted in its code—the misty attributes of its legislator, who treats every attempt to inquire into his proceedings as the most unpardonable of insults—all these render it quite impossible for a religionist to preserve anything like a satisfactory accordance between his belief and his practice. Hence a perpetual uneasiness and dissatisfaction with himself—a sense of infirmity of purpose and dereliction of principle—which is thoroughly fatal to all calmness or complacency of mind. Privations or torture might by habit become tolerable and even indifferent; but this feeling of inferiority and degradation is continually renovated, and never ceases to vex the resolving and re-resolving sinner. And a mind thus at variance with itself

can never be at peace with anybody else, or feel sufficient leisure to sympathize with the emotions of others. It shelters its own vacillation under the plea of the general debasement and original wickedness of the whole human race: and this plea must assuredly weaken, if it does not entirely root out, all sympathy for such degenerate beings.

Dissatisfied with his own conduct, it is hardly possible that a man can be satisfied with that of others. We are told indeed that this consciousness of imperfection in ourselves ought to engender humility, and indulgence towards the defects of our brethren. But rarely indeed does it produce any such effect as this. Its general tendency is to sharpen the edge of envy—to make us more acute in hunting out and magnifying the faults of others, inasmuch as nearly the sole comfort remaining to us, is the view of others equally distant from the same goal.

When we consider how infinitely the happiness of every family and society depends upon the steadiness and equability of disposition in each member, whereby all the rest are enabled to ascertain and avoid whatever might offend him—and upon the sympathy which each man manifests for the feelings of the remainder—the mischief above explained must be estimated very high in amount. There can be no equability of temper, where there is an unceasing conflict of principle and practice—of resolution and failure: and where the mind is darkened over by a sense of self-abasement and guilt. There can be no sympathy either for the enjoyments or the sufferings of others, where the thoughts of an individual are absorbed in averting posthumous torments or in entitling himself to a posthumous happiness—and where this object, important as it is, is involved in such obscurity, as to leave him in a state of perpetual anxiety and apprehension.

It is useless to affirm, that Religion does not in fact produce this unhappy result. If it does not, this is only because its motives cannot from their distance and uncertainty be made to act steadily and consistently upon the mind. So far as they do act, they tend to this result—and under peculiar circumstances, where the influence of the human motives is weakened or nearly removed, go far to

accomplish it completely. Such is the case in monasteries, as may be seen by consulting the account of Don Leucadio Doblado, cited above.

MISCHIEF VI.—CREATING A PARTICULAR CLASS OF PERSONS INCUR-
ABLY OPPOSED TO THE INTERESTS OF HUMANITY.

I have endeavoured in the preceding pages to point out all the different modes in which natural religion acts injuriously upon the temporal happiness of society. One species of injury yet remains to be indicated, and that too of incalculable effect and permanence—partly as it is productive of distinct mischief, independently and on its own account—partly as it subsidizes a standing army for the perpetuation of all the rest.

Those who believe in the existence and earthly agency of a superhuman being, view all facts which they are unable to interpret, as special interventions of the celestial hand. Incomprehensible phenomena are ascribed naturally to the incomprehensible person above. They call forth of course the deepest horror and astonishment, as being sudden eruptions of the super-aërial volcano, and reminding the spectator of its unsubdued and inexhaustible terrors. When any such events take place, therefore, his mind is extremely embarrassed and unhinged, and in the highest degree unfit for measuring the correctness of any inferences which immediate fear may suggest.

Now incomprehensible phenomena occur very frequently in the persons of different men—that is, certain men are often seen to act in a manner which the spectator is unable to reconcile with the general principles of human action, so far as they are known to him. Incomprehensible men and incomprehensible modes of behaviour, when they do thus happen, are of course subject to the same construction as other unintelligible events, and are supposed to indicate a signal interference of the Deity. When therefore the actions of any man differ strikingly from the ordinary march of human conduct, we naturally imagine him to be under the peculiar impulse and guidance of the divine finger.

Of incomprehensible behaviour the two extremes, though

of diametrically opposite kinds, are superior wisdom, and extravagant folly. A loftier and better cultivated intelligence attains his ends by means which we cannot fathom—overleaps difficulties which seem to us insurmountable—foresees consequences which we had never dreamt of. His system of action is to us altogether perplexing and inexplicable. There are others again who seem insensible to the ordinary motives of man—whose thoughts, words, and deeds are alike incoherent and inconsequential—whose incapacity disqualifies them for the commonest offices of life. Such is the other species of incomprehensible man, whom we generally term an idiot or a madman, according to circumstances. Both the extremes of intelligence and folly thus exhibit phenomena which we are unable to account for, and are each therefore referred to the immediate influence and inspiration of God.⁵

Amongst early societies, where a very limited number of phenomena have yet been treasured up for comparison, and where the established general principles are built upon so narrow an induction, events are perpetually occurring which seem at variance with them. The sum of principles thus established, is called *the course of nature*, and the exceptions to them, or supernatural inroads, are extremely frequent. Accordingly, men of unaccountable powers and

⁵ In a former part of this volume, I have assimilated the God of natural religion, on the ground of his attribute of incomprehensibility, to a madman. But as this property is here asserted to belong to the superior intelligence also, it may be asked why I did not compare the divine Being to him, instead of choosing a simile apparently so inappropriate. In reply to this, I must introduce a concise but satisfactory distinction.

The madman is one, incomprehensible both in the ends which he seeks and in the means which he takes to attain them—one whose desires and schemes are alike inconsistent and unfathomable. The superior genius is one, whose ends we can understand and assign perfectly, but whose means for attaining them are inexplicable—inasmuch as his fertility of invention, and originality of thought, have enabled him to combine his operations in a manner never previously witnessed.

Now both the ends which the Deity proposes, and the means by which he pursues them, are alike above the comprehension of our finite intellects. And this suffices to vindicate the propriety of my original comparison.

behaviour are easy to be found, where the standard of comparison is so imperfectly known; and the belief in particular persons, as inspired by God, is proportionably prevalent in an early stage of society.

Conformably to the foregoing doctrine, we find that rude nations generally consider madmen and idiots as persons under the impulse of unseen spirits, and view them with peculiar awe and reverence. This, however, though a remarkable fact, and signally illustrative of the principle, yet leads to no important consequences, and may be dismissed without farther comment. But the belief of a divine inspiration and concomitancy in persons of superior intelligence, is productive of great and lasting changes in the structure of the social union: and it is most instructive as well as curious to trace the gradual progress of these alterations. A madman is unable to take advantage of any prejudice existing in his favour among mankind, or to push such a feeling into its most profitable result. It terminates, therefore, in those spontaneous effusions of reverence, which do not extend their effects beyond the actual moment and individual.

In order to lead to any lasting consequence, it is necessary that the performer of incomprehensible acts should possess sufficient acuteness to take advantage of the inference which mankind are disposed to draw from them. He need not indeed be a first-rate intellect—but he must be some degrees above a madman or an idiot.

The inferences which an unenlightened mind is in this case inclined to adopt, are indeed most extensive and important. A man is seen, or believed, to produce some given effect, by means which the spectators did not before know to be adequate to that effect: astonished at such an unforeseen result, they think they cannot too highly magnify the extent of his power. It has already surpassed their anticipations very much—therefore there is no knowing by how much more it may surpass them—no possibility of conceiving its limits. He is therefore invested for the time with omnipotence, by the supposed momentary descent and co-operation of the unseen Being above. But if the Almighty has condescended to pay such pointed attention to any individual, this must be owing to some very

peculiar intimacy between them. The individual must possess extraordinary means of recommending himself to the favour of God, in order to attract the distinction of a supernatural visit, and to be honoured with the temporary loan of a fraction of omnipotence. He must stand high in the estimation of the Deity, and must therefore be well acquainted with his disposition, and with the modes of conciliating or provoking him.

Such are the long train of inferences which the performance of an unaccountable act suggests to the alarmed beholders. It is important to remark the gigantic strides by which the mind is hurried on it knows not where, beyond all power of stoppage or limit, the moment it quits the guidance of observation, and is induced to harbour *extra-experimental* belief. A man is seen to do an incomprehensible deed: the utmost consequence which experience would extract from this, would be, that under circumstances not very dissimilar, the same man could repeat the deed. If a king is seen to remove one man's scrofula by the touch, experience might warrant us in conjecturing that he might cure the same disease in another; but it would be as ridiculous to infer from this single fact, that he possessed the power of performing any other feats, as it would be to conclude that, because mercury quickened the action of the liver, you might rely upon it for the alleviation of the gout. Such, I say, would be the conclusion of a rational observer. But the mind, when once disengaged from observation, and initiated into extra-experimental belief, rolls about without measure in her newly-acquired phrenzy, and glances in a moment from earth to heaven and from heaven to earth. To him that hath, more shall be given: pursuant to this maxim, we ascribe to the man who astonishes us by one incomprehensible feat, the ability of astonishing us still more by a great many others. Nay, the power, which we are led to conceive as exerted, seems too vast to be ascribed to him alone. We, therefore, introduce an omnipotent accomplice into the scene, and regard the feat as indicating the intervention of a hand sufficiently mighty to work any imaginable marvel. Such is the prompt and forcible transit whereby the *extra-experimental* believer is hurried on to swell the power which he beholds into a greater, and that

still farther into the greatest—until at last an act of legerdmain is magnified into an exhibition of omnipotence.

But however unwarranted the inferences thus stated may appear, their effect is not the less important. The wonder-worker gains credit for possessing an extent of power to which we can assign no limits ; we view him as a privileged being, possessed of a general power of attorney from the Almighty to interpret his feelings, to promulgate his will, and to draw for supernatural recompense and punishments at pleasure. In virtue of this extensive deputation, the principal becomes responsible for everything which his emissary says and does, and is supposed to resign the whole management of earthly affairs in favour of the latter.

A wonder-worker thus, by merely producing an adequate measure of astonishment in the bosoms of mankind, is immediately exalted into a station of supreme necessity and importance. All knowledge of the divine will, all assistance from the divine power, can only be attained through his mediation. The patronage thus ascribed to him is enormous, and is, like all other patronage, readily convertible into every other sort of emolument or desirable object. Every one who seeks the divine favour, will not fail to propitiate the minister by whom his petition must be countersigned—whose blessing or curse determines his future treatment at the hands of the Deity. Knowledge of the divine intentions is another perennial source of influence and lucre to the wonder-worker. Hence he is supposed to foreknow the phenomena of nature, and the ignorant, when in doubt, regulate their behaviour by the results which he prognosticates. His patent too of interpreting the divine decrees, to which no competitor has any access, virtually empowers him to manufacture a decalogue on his own account, and to enforce its mandates by all the terrors of spiritual police and penalties.

Powers of such tremendous magnitude appear amply sufficient to enslave and lay prostrate the whole community. And this they infallibly would do, were the extra-experimental belief steady, equable, and consistent with itself, always applying similar principles on similar occasions ; and if it were never over-borne by the more immediate motives and acquisitions of earth. The urgent necessity of

providing for temporal exigencies, which are too pressing to await the result of an application to heaven, impels the minds of men in another direction, and models their associations more and more according to the dictates of experience. Having acquired, by their own exertions, the means of satisfying their wants, they have not so great an occasion for aërial aid, and all successive accumulations of knowledge tend to weaken the influence of the divine deputy over them.

My present purpose, however, is to investigate not so much the extent of this influence, as the direction in which it operates. We design to show, that the performer of prodigies (or this class, if there be more than one) when elevated to the post of interpreter and administrator of the divine will, and exercising an influence built upon these privileges—becomes animated with an interest incurably and in every point hostile to human happiness: That their sway can only be matured and perfected by the entire abasement and dismantling of the human faculties; and that therefore all their energies must be devoted to the accomplishment of this destructive work, by the best means which opportunity presents.

1. They have the strongest interest in the depravation of the human intellect. For the demand for their services as agents for the temporal aid of the Deity, altogether depends upon human ignorance and incapacity, and is exactly proportional to it. Why does a man apply for the divine assistance? Because he does not know how to accomplish his ends without it, or how to procure the requisite apparatus for the purpose. If he knew any physical means of attaining it, he would unquestionably prefer them. Every extension therefore of physical methods in the gratification of our wishes, displaces and throws out of employment by so much the labour of the aërial functionaries. No one prays for the removal of a disease by supernatural aid, when he once knows an appropriate surgical remedy. He therefore who lives by the commission which he charges on the disposal of the former, has a manifest interest in checking the advance and introduction of the latter.

Besides, the accumulation of experimental knowledge excludes the supernatural man from another of his most

lucrative employments—that of predicting future events. Those who are the most ignorant of physical connections, and therefore the least qualified to form a judgment as to any particular result, are of course the most frequent in their applications for extra-physical guidance, and the most likely to follow it. This is their sole mode of procuring the most indispensable of all acquisitions. Upon them too it is the most easy to palm a vague and oracular response or decree as to the future, capable of applying to almost any result; and they are the most easily imposed upon by shifts and pretences which veil the incapacity of the respondent. When mankind advance a little in knowledge, and become inquisitive, the task of the soothsayer becomes more and more difficult; whereas ignorance and credulity are duped without any great pains. The supernatural agent therefore has a deadly interest against the advance of knowledge, not only as it introduces a better machinery for obtaining acquaintance with the future, and thereby throws him out of employment as a prophet—but also as it enables mankind to detect the hollow, fictitious, and illusory nature of his own predicting establishment.

2. As he is interested in impeding the progress of knowledge, so he is not the less interested in propagating and cherishing *extra - experimental* belief. Ignorance is his negative ally, cutting off mankind from any other means of satisfying their wants except those which he alone can furnish: *Extra-experimental* belief is the substratum on which all his influence is built. It is this which furnishes to mankind all their evidence of the being, a power and agency of his invisible principal, and also of the posthumous scenes in preparation for us, where these are to be exhibited on a superior and perfect scale. It is this too which supplies mankind with the credentials of his own missions, and makes them impute to him at once, and without cavilling, all that long stretch of ærial dignity and prerogative, the actual proof of which it would have been difficult for him to have gone through. Both the hopes and fears, therefore, which call for his interference, and the selection of him as the person to remove them, rest upon the maintenance of extra-experimental persuasion in the human breast. Were belief closely and inseparably knit with experience, he would

never obtain credit for the power of doing anything else than what mankind really saw him do. His interest accordingly prompts him to disjoin the two—to disjoin them on *every* occasion in his power, if he would ensure their disjunction for his own particular case.

Any one therefore whose power and credit with mankind, rests upon the imputation of supernatural ambassadorship, must be impelled by the most irresistible motives to disunite belief from experience in the bosoms of mankind, as much as he possibly can.

3. Take the same person again, in his capacity of licensed interpreter of the divine will and decrees. What edicts will he be likely to promulgate, as emanating from this consecrated source?

The only circumstance which makes the power of the law-interpreter inferior to that of the legislator, is the accessibility of the text which he professes to explain. Where this is open to the whole public as well as to him, his explanation may be controverted, and recourse will then be had to the production of the original. But if either there exist no original at all, or the interpreter possesses the exclusive custody of it, his power is completely equivalent to that of a legislator.

Now in one of these two alternatives stand the divine decrees. Either there never were any original decrees at all—or if there were, they have been deposited in a spot unknown to any one except the authorized interpreters. And therefore the latter become in fact legislators, issuing whatever edicts they choose in the name and on the behalf of their invisible master—and enforcing them *ad libitum* by any imaginable measure of punishment or reward, drawn from his inexhaustible magazines.

Now what principle will govern the enactments of an interpreter, or licensed class of interpreters, when thus exercising an unfettered power of legislation? The general principles of human nature suffer us not to hesitate a moment in answering this question. It will be a regard to their own separate interest. Like all other monopolists who possess the exclusive privilege of rendering any particular service, like all other possessors of power independent of, and irresponsible to, the community—they will pursue

the natural path of self-preference, and will apply their functions to purposes of aggrandizement and exaction.

Now this separate interest is irreconcilably at variance with that of society. If any man, or any separate class, are permitted to legislate for their own benefit, they are in effect despots; while the rest of the community are degraded to the level of slaves, and will be treated as such by the legislative system so constructed. Conformably to this system the precepts delivered by the supernatural delegate as enacted by his invisible master, will be such as to subjugate the minds of the community, in the highest practicable degree, to himself and to his brethren, and to appropriate for the benefit of the class as much wealth and power as circumstances will permit. This is a mere statement of the dictates of self-preference.

4. To effect this purpose, he will find it essentially necessary to describe the Deity as capricious, irritable, and vindictive, to the highest extent—as regarding with gloom and jealousy the enjoyments of the human worm, and taking delight in his privations or sufferings—pliable indeed without measure, and yielding up instantaneously all his previous sentiments, when technically and professionally solicited—but requiring the perpetual application of emollients to soothe his wrathful propensities. The more implicitly mankind believe in these appalling attributes, the more essential is he who can stand in the gap and avert the threatened pestilence—the more necessary is it to insure his activity by feeing and ennobling him. On whatever occasions he can, in the capacity of interpreter to the divine will, persuade them that they are exposed to supernatural wrath—in all such junctures, he will obtain a fee, as mediator or intercessor, for procuring a reprieve.

The more therefore he can multiply the number of offences against God, the greater does his profit become—because on every such act of guilt, the sinner will find it answer to forestall the execution of the sentence by effecting an amicable compromise with the vicegerent of the Almighty. For rendering so important a service, the latter may make his own terms.

But in order to multiply offences, the most efficacious method is to prohibit those acts which there is the most

frequent and powerful temptation to commit. Now the temptation to perform any act is of course proportional to the magnitude of the pleasurable, and the smallness of the painful, consequences by which it is attended. Those deeds, therefore, which are the most delightful, and the most innoxious, will meet with the severest prohibitions in the religious code, and be represented as the most deeply offensive to the divine majesty. Because such deeds will be most frequently repeated and will accordingly create the amplest demand for the expiatory formula.

Such therefore will be the code constructed by the supernatural delegate in the name of his unearthly sovereign—including the most rigorous denunciations against human pleasure, and interdicting it the more severely in proportion as it is delicious and harmless. He will enjoin the most gratuitous and unrequited privations, and self-imposed sufferings, as the sole method of conciliating the divine mercy,—inasmuch as the neglect of these mandates must be the most common, and all such remissness will incur a penalty which the transgressor must be compelled to redeem.

5. All the purchase which the interpreter of the divine will has upon the human mind, depends upon the extent of its superhuman apprehensions. It is therefore his decided interest that the dread of these unseen visitations should haunt the bosoms of mankind, like a heavy and perpetual incubus, day and night—that they should live under a constant sense of the suspended arm of God—and thus in a state of such conscious insecurity and helplessness, that all possibility of earthly comfort should be altogether blighted and cast out. The more firmly these undefined terrors can be planted in a man's associations, the more urgent is his need of a mediator with the ærial kingdom to which his apprehensions refer, and the more enormous the sacrifices which he will make in order to purchase such intercession.

6. Again, it will be the decided interest of the inspired legislator, to clothe all his enactments in the most imposing epithets of moral approbation—to describe the Being, by whom he is commissioned, in terms which imply the holiest and most beneficent character, though the proceedings and

the system which he attributes to him indicate the very opposite temper—and to make mankind believe that every act of this Being is, and must be, just. By thus perverting their moral sentiments, he tightens and perpetuates the pressure of superhuman apprehensions. There will be less tendency to murmur and revolt at these threats, when men are persuaded that they have justly incurred the anger of an all-beneficent Being.

By this analysis, I think, it appears most demonstratively, that all those whose influence rests on an imputed connection with the Divine Being, cannot fail to be animated by an interest incurably opposed to all human happiness: that the inevitable aim of such persons must be to extend and render irremediable those evils which natural religion would originate without them, viz., ignorance, extra-experimental belief, appalling conceptions of the Deity, intense dread of his visitations, and a perversion of the terms of praise and censure in his behalf. To this identity of result I have traced them both, although by different and perfectly unconnected roads.

Natural religion is thus provided with an array of human force and fraud for the purpose of enforcing her mandates, and realizing her mischievous tendencies. A standing army of ministers is organized in her cause, formed either of men who are themselves believed to be specially gifted from the sky, or of others who pretend not to any immediate inspiration in their own persons, but merely act as the sub-delegates of some heaven-commissioned envoy of aforetime. The interest of both these sorts of persons is precisely identical, nor is it of the smallest importance whether the patent is worked by the original pretender, or by any one else into whose hands it may have subsequently fallen. In either case its fruits are equally deleterious.

In either case, the same conspirators league themselves for the same purposes—that of promulgating and explaining the will of their incomprehensible master, and subjugating to his thralldom the knowledge and the hopes of mankind. And the accession of strength, which religion derives from this special confederation in her favour, is incalculable. They supply many defects, in her means of

conquest and influence, which must otherwise have rendered her dominion comparatively narrow.

First, one grand deficiency in unofficered religion, is the absence of any directive rule. Mankind, from their conceptions of the character of the Deity, will doubtless conjecture what sort of conduct will be agreeable to him, and will also fix upon some particular actions belonging to that course as more agreeable than others. But this unguided and promiscuous selection is not likely to be either uniform, earnest, or circumstantial.

When a body of authorized agents is framed, through whom the designs and temper of the Deity can be learnt, this defect is completely supplied. The ceremonial pleasing to him is then officially declared: the acts offensive to him are enumerated and defined, and their greater or less enormity graduated. Doubt and controversy are precluded, or at least exceedingly narrowed, by an appeal to the recognized organ of infallibility. And thus the superhuman terrors are concentrated and particularized, whereby they are brought to act in the most cogent and effective manner which the nature of the case admits.

2. In analyzing the efficiency of the religious sanctions, we have already seen that their remoteness and uncertainty will not allow of their producing a steady, equable and unvarying impression upon the mind—although at peculiar moments these apprehensions become supreme and overwhelming, even to insanity. For motives thus subject to fluctuation, the constant presence of a standing brotherhood is peculiarly requisite, in order to watch those periods when the mind is most vulnerable to their influence—to multiply and perpetuate, if possible, these temporary liabilities, and to secure the production of some permanent result during the continuance of the fit. The ministers of natural religion, by bringing their most efficient batteries to bear upon the mind at these intervals, frequently succeed in extending the duration of the supernatural fears, and subjugating the whole man for life.

Sickness—mental affliction—approaching death—childhood—all these are periods when the intellect is depressed and feeble, and when the associations are peculiarly liable to the inroads of every species of fear—they are the times

therefore when the officer of the invisible world exercises the most uncontrolled despotism over the soul, and bends it whither he will. Were it not for his dexterity in contriving to render the bias permanent, the sick or the despondent would probably relapse, in no long period, into their habitual state, of comparative insensibility to supernatural terrors.

With regard to the dying man, indeed, no ulterior views can be entertained; but the immediate effect of the presence and ascendancy of a religious minister, on the occasion, is most important. Without his aid, posthumous apprehensions would indeed embitter the hour of death, but this would be productive of no subsequent evil. The minister not only aggravates these terrors to an infinitely higher pitch, but offers to the distracted patient a definite and easy mode by which he may in part alleviate them, and lessen the impending risk. He must make some atonement or satisfaction to God, in return for the offensive acts with which his life has abounded, by transferring a part or the whole of that property which he is at all events about to leave behind. But as he cannot have access in person to the offended principal, this property must be handed over in trust to his accredited agent or minister, for the inaccessible party. By such testamentary donation the sins of the past are in part redeemed.

The religious fears attending upon the hour of death are thus converted into powerful engines for enriching the sacerdotal class, who contrive to extract this lasting profit from an affection of mind which would otherwise have caused nothing beyond momentary pain. The act of mortmain attests the height to which these death-bed commutations have actually been carried: nor is it extravagant to assert, that had there been no change of the public sentiment and no interposition of the legislature, nearly all the land of England would have become the property of the Church.

3. It should by no means be forgotten, that the inefficiency, and the alternation from general indifference to occasional fever, which I have shown to belong to the religious sanction, constitute the leading source of importance and emolument to the priesthood. Suppose mankind to be

perfectly acquainted with all the modifications of the Divine temper, and strictly observant of his commands, the functions of this class would of course become extinct. There would be no necessity for their services either as interpreters, mediators, or intercessors.

It is their decisive interest to multiply offences, as preparations for the lucrative season of repentance, during which their sway is at its zenith, and their most advantageous contracts realized. For each crime a pardon must be obtained through the intercession and agency of the authorized mediator. He must therefore be propitiated by payment both in money and honour, and the profits of the sacerdotal body bear an accurate ratio to the number of offences committed, and of pardons implored.

Thus the nature of the religious sanction, though very ill adapted for the purpose of actually terminating the practices it forbids, is yet calculated in the most precise manner to exalt and enrich the officers busied in enforcing it. This is the end, at which, supposing them like other men, they will be constantly aiming, and they have enjoyed facilities in the attainment of it rarely possessed by mere intermediate agents.

For, first, they have found posthumous terror, from its instability and occasional fierceness, an exquisite preparative of the mind for their dominion. And, secondly, they have united two functions which have placed this feeling entirely under their direction—they are, ex-officio, both framers of the divine law and vendors of the divine pardons for infringements of it. They have named the acts which required forgiveness as well as the price at which forgiveness should be purchased. Suppose only the periodical spring-tides of superhuman fear to reach a certain height, and this machinery for subjugation becomes perfect and irresistible.

If in earthly matters, these two functions were united—if the same person were to become framer of the law, and agent for the sale of licences to elude it—it is manifest, that he would make terrestrial laws inconceivably burdensome and exactive, so that there should be no possibility of observing them. The interest of the sacerdotal class has been completely similar, leading them to require, in the

name of the Deity, obedience where obedience is impracticable, and then making men pay for the deficiency. Accordingly they inform us that he is a Being of such an exquisite and irritable temperament—so nicely susceptible, and so vehemently impatient of everything which is not exactly like himself, that we cannot escape his displeasure, except by undergoing a thorough repair and regeneration upon the celestial model. If but the most transient wish for anything unlike to God, or unholy, shoots across the mind, it constitutes criminality and is deeply abhorrent to the divine perfection. To such a state of entire conformity no human being ever yet attained—and thus, by the invention of an impracticable code, mankind are placed in a constant necessity of discharging expiatory fees, and purchasing licences of evasion.

In this respect, the sacerdotal interest is directly at variance, not only with that of the human race, but also with that of the divine Being. He sincerely desires, without doubt, that his edicts should be strictly obeyed, and, therefore, would be willing to facilitate their execution, so far as is consistent with his own sensitive and exquisite purity. But the middlemen who pretend to serve him have unfortunately an interest in their non-performance, and therefore throw every possible obstacle in the way of obedience.

4. In a former part of this work, I endeavoured to show, that the real actuating force which gave birth to religious deeds, though so masked as not to be discernible on a superficial view was *public opinion*. There cannot be a more effectual spur to this popular sentiment than the formation of a body whose peculiar interest lies in watching its various turns, in kindling it anew, and dexterously diversifying its applications. For this task they possess numerous advantages. The necessity of recurring to their services on many occasions ensures to them a large measure of respect, as well as of wealth, and this re-acts upon the function which they exercise. They labour sedulously to inculcate the deepest reverence in speaking of religious matters, as well as extreme backwardness and timidity of soul in subjecting them to the examination of reason. They diffuse widely among the community those pious misap-

plications of moral epithets, which are inseparably annexed to the natural belief in an omnipotent Being, availing themselves of this confusion of language to stigmatize as iniquitous everything which counteracts their own views, and to extol as virtuous that which favours them.

By thus whipping up and propagating the religious antipathies of mankind, they generally succeed in organizing that tone of public opinion which is most conducive to their interest: that is, a sentiment which rigorously enforces a certain measure of religious observance—while it also recognizes in words, as incumbent and necessary duties of piety, a number of other acts which no one ever performs, and which mankind will allow you to leave undone, provided you do not question the propriety of doing them. A variance is thus introduced between the religious feelings and the reigning practice, and whenever any accident preternaturally kindles the former, such a laxity of conduct will of course appear pregnant with guilt. Hence that ebb and flow of mind, and those periodical spasms of repentant alarm, which can only be charmed away by purchasing comfort at the hands of the spiritual exorcist. And thus the constitution of the public sentiment becomes a preparation and medium for the effectual dominion of this class.

5. The fundamental principle, upon which all the superhuman machinery rests its hold, has been shown to consist in *extra-experimental* belief. Now in diffusing and strengthening this species of persuasion, the sacerdotal body form most essential auxiliaries. They are the legitimate and acknowledged interpreters of all incomprehensible events, and any inference which they extract from thence is universally adopted. This bestows upon them an unlimited licence of coining and circulating as much *extra-experimental* matter as they choose, and of distorting the physical links among phenomena by smuggling in an appeal to the divine intentions. By their constant and well-paid activity, also, every casual coincidence is magnified into a prodigy—every prediction accidentally verified, into a proof of their free-right of admission behind the unexpanded scenes of futurity. Besides they are continually at hand to spread abroad those myriads of fictions, which the *extra-experimental* belief has been shown to engender. Menda-

city itself becomes consecrated, when employed in behalf of religion; and the infinity of pious frauds, which may be cited from the pages of history, sufficiently attest the zeal and effect with which the sacerdotal class has laboured in the diffusion of this unreal currency.

From this successive accumulation of particular instances, a large aggregate of *extra-experimental* matter is at last amassed, which lays claim to the title and honours of a separate science. The stories upon which it is founded are so thickly and authoritatively spread abroad—apparently so unconnected one with the other, and relying upon numerous separate attestations, that it seems impossible to discredit the whole, and difficult to know where to draw the line. To fulfil so nice a task, writers arise who compare the different stories together, arrange them into a systematic order, extract meanings and inferences from these collations, and reject those particulars which cannot be reconciled with the theories thus elicited. This aerial matter is distributed into a regular and distinct branch of knowledge, partitioned into various subordinate departments, and the sacerdotal class of course monopolizes the guidance and guardianship of this science almost exclusively to themselves. We have only to consult the first book of Cicero, “*de Divinatione*,” in order to observe the minute subdivisions which the imaginary science of augury underwent in those times—the formal array of conclusions which appear to be strictly deduced from its alleged facts, and the various philosophical systems framed to explain and reconcile them.

Accordingly the *extra-experimental* belief, when sufficiently augmented in volume, becomes possessed of a distinct station among the sciences, and reflects upon its practitioners and professors all that credit which is annexed to superiority in any other department. Realities become divided into two separate classes: First, the world of experience, embracing all which we see, feel, hear, taste, or smell, and the various connections among them. Secondly, the world of which we have no experience, consisting of what are called immaterial entities, or of those things which we neither see, nor feel, nor hear, nor taste, nor smell; but which, nevertheless, we are supposed to know

without any experience at all. The latter science is always the colleague and correlative of the former—frequently, indeed, it is more highly esteemed and more assiduously cultivated.

I have endeavoured to trace some of those modes, in which the brotherhood hired and equipped by natural religion have contrived to promote, in so high a degree, the success of the cause inscribed on their banners—and in so much higher a degree, to aggrandize and enrich themselves. My sketch, indeed, has been exceedingly superficial and incomplete; because the facilities which such a standing corps possesses for compassing its ends, are both innumerable and indescribable. We ought not, however, to forget, that a wealthy and powerful body of this kind not only acts with its own force, but also with that of all who have anything to hope, or to fear, from it. To become a member of the body constitutes a valuable object of ambition, and all, who have any chance of attaining such a post, will of course conspire vehemently in its support. Besides, there arises a long train of connections and dependants, who diffuse themselves everywhere through the community, and contribute most materially to spread and enhance the influence of the class.

In addition to these, however, they have yet another ally, more powerful and efficient than all the rest,—the earthly chief, or governing power of the state. He, as well as they, has an interest incurably at variance with that of the community, and all sinister interests have a natural tendency to combine together and to co-operate, inasmuch as the object of each is thereby most completely and most easily secured. But between the particular interest of a governing aristocracy and a sacerdotal class, there seems a very peculiar affinity and coincidence—each wielding the precise engine which the other wants.

The aristocracy, for instance, possess the disposal of a mass of physical force sufficient to crush any partial resistance, and demand only to be secured against any very general or simultaneous opposition on the part of the community. To make this sure, they are obliged to maintain a strong purchase upon the public mind, and to chain it down to the level of submission—to plant within it feelings which may neutralize all hatred of slavery, and facilitate the

business of spoliation. For this purpose the sacerdotal class is most precisely and most happily cut out. By their influence over the moral sentiments, they place implicit submission among the first of all human duties. They infuse the deepest reverence for temporal power, by considering the existing authorities as established and consecrated by the immaterial Autocrat above, and as identified with his divine majesty. The duty of mankind towards the earthly government becomes thus the same as duty to God—that is, an unvarying “prostration both of the understanding and will.” Besides this direct debasement of the moral faculties for the purpose of assuring non-resistance, the supernatural terrors, and the *extra-experimental* belief, which the priesthood are so industrious in diffusing, all tend to the very same result. They produce that mistrust, alarm, and insecurity, which disposes a man to bless himself in any little fragment of present enjoyment, while it stifles all aspirations for future improvement and even all ideas of its practicability.

Such is the tacit and surreptitious, though incessant and effectual, operation on the public sentiment, by which the priesthood keep down all disposition on the part of mankind to oppose the inroads of their governors. Their influence is perhaps greater when they preach thus on behalf of the government, than on their own. Because in the former case, the interest which they have in the doctrine is not so obvious, and they appear like impartial counsellors, inculcating a behaviour of which they themselves are first to set the example.

The earthly ruler, on the other hand, amply repays the co-operation which he has thus derived. The mental (or psychological) machinery of the priesthood is very excellent; but they are unhappily deficient in physical force. Hence the protection of the earthly potentate is of most essential utility to a class so defectively provided in this main point. The coercion which he supplies is all sanctified by the holy name of religion, in defence of which it is resorted to; and he is extolled, while thus engaged, as the disinterested servant of the invisible Being. He is therefore permitted to employ, in behalf of religion, an extent and disposition of force which would have provoked indignation and revolt, on any other account.

The utmost extent of physical force, which circumstances will permit, is in this manner put forward, to smother any symptom of impiety, or even of dissent from the sacerdotal dogmas. Irreligion and heresy become crimes of the deepest dye, and the class are thus secured, in their task of working on the public mind, from all competition or contest. Under the protection of such powerful artillery, this corps of sappers and miners carries on a tranquil, but effectual, progress in the trenches.

Nor is it merely a negative aid which the earthly governor extends to them. He extorts from the people, in their favour, a large compulsory tribute, in order to maintain them in affluence and in worldly credit; thus securing to them an additional purchase upon the public sentiment, and confirming his own safety from resistance. Under no other pretence could he induce the people to pay taxes, specially for the purpose of quartering throughout the country a standing army of advocates to check and counteract all opinions unfavourable to himself. They may be brought to this sacrifice in behalf of a sacerdotal class, whose interest, by the forced provision thus obtained, becomes still more closely identified with that of the earthly ruler.

One of the most noxious properties therefore, in the profession of men to which natural religion gives birth, is its coincidence and league with the sinister interests of earth—a coincidence so entire, as to secure unity of design on the part of both, without any necessity for special confederation, and therefore more mischievously efficient than it would have proved had the deed of partnership been open and proclaimed. Prostration and plunder of the community is indeed the common end of both. The only point upon which there can be any dissension, is about the partition of the spoil—and quarrels of this nature have occasionally taken place, in cases where the passive state of the people has obviated all apprehension of resistance. In general, however, the necessity of strict amity has been too visible to admit of much discord, and the division of the spoil has been carried on tranquilly, though in different ratios, according to the tone of the public mind.

ADDRESS

DELIVERED BEFORE

THE BRITISH ASSOCIATION

ASSEMBLED AT BELFAST.

BY

JOHN TYNDALL, F. R. S.,

PRESIDENT.

REVISED BY THE AUTHOR,

WITH A SECOND PREFACE, REPLYING TO HIS CRITICS; AND AN APPENDED
ARTICLE ON "SCIENTIFIC MATERIALISM."

NEW YORK:

D. APPLETON AND COMPANY,

549 AND 551 BROADWAY.

1875.

“There is one God supreme over all gods, diviner than mortals,
Whose form is not like unto man’s, and as unlike his nature ;
But vain mortals imagine that gods like themselves are begotten,
With human sensations and voice and corporeal members ;
So, if oxen or lions had hands and could work in man’s fashion,
And trace out with chisel or brush their conception of Godhead,
Then would horses depict gods like horses, and oxen like oxen,
Each kind the divine with its own form and nature endowing.”

XENOPHANES of Colophon (six centuries B. C.), “Supernatural Religion,”
Vol. I., p. 76.

“It were better to have no opinion of God at all, than such
an opinion as is unworthy of him ; for the one is unbelief, the
other is contumely.”

BACON.

2mP100ct44

PREFACE TO THE SEVENTH EDITION.

I TAKE advantage of a pause in the issue of this Address, to add a few prefatory words to those already printed.

The world has been frequently informed of late that I have raised up against myself a host of enemies; and considering, with few exceptions, the deliverances of the Press, and more particularly of the religious Press, I am forced sadly to admit that the statement is only too true. I derive some comfort, nevertheless, from the reflection of Diogenes, transmitted to us by Plutarch, that "he who would be saved must have good friends or violent enemies; and that he is best off who possesses both."¹ This "best" condition, I have reason to believe, is mine.

Reflecting on the fraction I have read of recent remonstrances, appeals, menaces, and judgments—covering not only the world that now is, but that which is to come—it has interested me to note how trivially men seem to be influenced by what they call their religion, and how potently by that "nature" which it is the alleged province of religion to eradicate or subdue. From fair and manly argument, from the tenderest and holiest sympathy on the part of those who desire my eternal good,

¹ *Fortnightly Review*, vol. xiv., p. 636.

I pass by many gradations, through deliberate unfairness, to a spirit of bitterness which desires, with a fervor inexpressible in words, my eternal ill. Now, were religion the potent factor, we might expect a homogeneous utterance from those professing a common creed, while, if human nature be the really potent factor, we may expect utterances as heterogeneous as the characters of men. As a matter of fact we have the latter; suggesting to my mind that the common religion professed and defended by these different people is merely the accidental conduit through which they pour their own tempers, lofty or low, courteous or vulgar, mild or ferocious, holy or unholy, as the case may be. Pure abuse, however, I have deliberately avoided reading, wishing to keep, not only hatred, malice, and uncharitableness, but even every trace of irritation, far away from my side of a discussion which demands not only good temper, but largeness, clearness, and many-sidedness of mind, if it is to guide us even to provisional solutions.

At an early stage of the controversy a distinguished Professor of the University of Cambridge was understood to argue—and his argument was caught up with amusing eagerness by a portion of the religious Press—that my ignorance of mathematics renders me incompetent to speculate on the proximate origin of life. Had I thought his argument relevant, my reply would have been simple; for before me lies a printed document, more than twenty-two years old, bearing the signature of this same learned Professor, in which he was good enough to testify that I am “well versed in pure mathematics.”

In connection with his limitation of speculative capacity to the mathematician, the gentleman just referred to offered what he considered a conclusive proof of the being of a God. This solemn problem he knocked off in a single paragraph. It interests me profoundly to reflect

upon the difference between the state of mind which could rest satisfied with this performance and that of the accomplished poet, and more than accomplished critic, who in "Literature and Dogma" pronounces the subject of the Professor's demonstration "an unverifiable hypothesis." Whence this difference? Were the objective facts decisive, both writers would come to the same conclusion: the divergence is, therefore, to be referred to the respective subjective organs which take the outward evidence in. When I turn, as I have done from time to time for years, to the articles and correspondence in our theological journals, and try to gather from them what our religious teachers think of this universe and of each other, they seem to me to be as far removed from nineteenth century needs as the priests of the Homeric period. Omniscience might see in our brains the physical correlates of our differences; and, were these organs incapable of change, the world, despite this internal commotion, would stand still as a whole. But happily that Power which, according to Mr. Arnold, "makes for righteousness" is intellectual as well as ethical; and by its operation, not as an outside but as an inside factor of the brain, even the mistaken efforts of that organ are finally overruled in the interests of truth.

It has been thought, and said, that, in the revised Address as here published, I have retracted opinions uttered at Belfast. A Roman Catholic writer, who may be taken as representative, is specially strong upon this point. Startled by the deep chorus of dissent with which my dazzling fallacies have been received, he convicts me of trying to retreat from my position. This he will by no means tolerate. "It is too late now to seek to hide from the eyes of mankind one foul blot, one ghastly deformity. Professor Tyndall has himself told us how and where this

Address of his was composed. It was written among the glaciers and the solitudes of the Swiss mountains. It was no hasty, hurried, crude production; its every sentence bore marks of thought and care."

My critic intends to be severe: he is simply just. In the "solitudes" to which he refers I worked with deliberation; endeavoring even to purify my intellect by disciplines similar to those enjoined by his own Church for the sanctification of the soul. I tried in my ponderings to realize not only the lawful, but the expedient; and to permit no fear to act upon my mind save that of uttering a single word on which I could not take my stand, either in this or any other world.

Still my time was so brief, and my process of thought and expression so slow, that, in a literary point of view, I halted, not only behind the ideal, but behind the possible. Hence, after the delivery of the Address, I went over it with the desire, not to revoke its principles, but to improve it verbally, and above all to remove any word which might give color to the notion of "heat and haste." In holding up as a warning to writers of the present the errors and follies of the denouncers of the past, I took occasion to compare the intellectual propagation of such denouncers to that of thistle-germs; the expression was thought offensive, and I omitted it. It is still omitted from the Address. There was also another passage, which ran thus: "It is vain to oppose this force with a view to its extirpation. What we should oppose, to the death if necessary, is every attempt to found upon this elemental bias of man's nature a system which should exercise despotic sway over his intellect. I do not fear any such consummation. Science has already to some extent leavened the world, and it will leaven it more and more. I should look upon the mild light of science breaking in upon the minds of the youth of Ireland, and strengthening gradually to the perfect day,

as a surer check to any intellectual or spiritual tyranny which might threaten this island than the laws of princes or the swords of emperors. Where is the cause of fear? We fought and won our battle even in the Middle Ages; why should we doubt the issue of a conflict now?"

This passage also was deemed unnecessarily warm, and I therefore omitted it. It was an act of weakness on my part to do so. For, considering the aims and acts of that renowned and remorseless organization which for the time being wields the entire power of my critic's Church, not only resistance to its further progress, but, were it not for the intelligence of Roman Catholic laymen, positive restriction of its present power for evil, might well become the necessary attitude of society as regards that organization. With some slight verbal alterations, therefore, which do not impair its strength, the passage has been restored.

My critic is very hard upon the avowal in my Preface regarding Atheism. But I frankly confess that his honest hardness and hostility are to me preferable to the milder but less honest treatment which the passage has received from members of other Churches. He quotes the paragraph, and goes on to say: "We repeat this is a most remarkable passage. Much as we dislike seasoning polemics with strong words, we assert that this apology only tends to affix with links of steel to the name of Professor Tyndall the dread imputation against which he struggles."

Here we have a very fair example of subjective religious vigor. But my quarrel with such exhibitions is that they do not always represent objective fact. No Atheistic reasoning can, I hold, dislodge religion from the heart of man. Logic cannot deprive us of life, and religion is life to the religious. As an experience of consciousness it is perfectly beyond the assaults of logic. But the religious life is often projected in external forms—I use the word in its widest sense—by no means beyond the reach of logic,

which will have to bear—and to do so more and more as the world becomes more enlightened—comparison with facts. The subjective energy to which I have just referred is also a fact of consciousness not to be reasoned away. My critic feels, and takes delight in feeling, that I am struggling, and he obviously experiences the most exquisite pleasures of “the muscular sense” in holding me down. His feelings are as real as if his imagination of what mine are were equally real. His picture of my “struggles” is, however, a mere phantasm. I do not struggle. I do not fear the charge of Atheism; nor should I even disavow it, in reference to any definition of the Supreme which he, or his order, would be likely to frame. His “links” and his “steel” and his “dread imputations” are, therefore, even more unsubstantial than my “streaks of morning cloud,” and they may be permitted to vanish together.

What are the conceptions in regard to which I place myself in the position here indicated? The Pope himself provides me with an answer. In the Encyclical Letter of December, 1864, his Holiness writes: “In order that God may accede more easily to our and your prayers, let us employ in all confidence, as our Mediatrix with Him, the Virgin Mary, Mother of God, who sits as a Queen on the right hand of her only-begotten Son, in a golden vestment, clothed around with various adornments.”

In regard to this, as to other less pictorially anthropomorphic and sartorial conceptions of the Supreme, I stand in an attitude of unbelief; for, taken in connection with what is known of the extent, organization, and general behavior of this universe, they lack the congruity necessary to commend them to me as truth.

Soon after the delivery of the Belfast Address, the Protestant Bishop of Manchester did me the honor of noticing it; and, in reference to that notice, a brief and, I

trust, not uncourteous remark was introduced into my first Preface. Since that time the Bishop's references to me have been very frequent. Assuredly this is to me an unexpected honor. Still a doubt may fairly be entertained whether this incessant speaking before public assemblies on emotional subjects does not tend to disturb that equilibrium of head and heart which it is always so desirable to preserve—whether, by giving an injurious predominance to the feelings, it does not tend to swathe the intellect in a warm haze, thus making the perception, and consequent rendering of facts, indefinite, if not untrue. It was to the Bishop I referred in a recent brief discourse¹ as “an able and, in many respects, a courageous man, running to and fro upon the earth, and wringing his hands over the threatened loss of his ideals.” It is doubtless to this sorrowing mood—this partial and, I trust, temporary overthrow of the judgment by the emotions—that I must ascribe a probably unconscious, but still grave, misrepresentation contained in the Bishop's last reference to me. In the *Times* of November 9th, he is reported to have expressed himself thus: “In his lecture in Manchester, Professor Tyndall as much as said that at Belfast he was not in his best mood, and that his despondency passed away in brighter moments.” Now, considering that a *verbatim* report of the lecture was at hand in the *Manchester Examiner*, and that my own corrected edition of it was to be had for a penny, the Bishop, I submit, might have afforded to repeat what I actually said, instead of what I “as much as said.” I am sorry to add that his rendering of my words is a vain imagination of his own. In my lecture at Manchester there was no reference, expressed or implied, to my moods in Belfast.

To all earnest and honest minds acquainted with the paragraph of my first Preface, on which the foregoing re-

¹ See Appendix for passage referred to. The whole discourse is given in THE POPULAR SCIENCE MONTHLY for January, 1875.

mark of Bishop Fraser, and similar remarks of his ecclesiastical colleagues, not to mention those of less responsible writers, are founded, I leave the decision of the question whether their mode of presenting this paragraph to the public be straightforward or the reverse.

These minor and more purely personal matters at an end, the weightier allegation remains—that at Belfast I misused my position by quitting the domain of science, and making an unjustifiable raid into the domain of theology. This I fail to see. Laying aside abuse, I hope my accusers will consent to reason with me. Is it not competent for a scientific man to speculate on the antecedents of the solar system? Did Kant, Laplace, and William Herschel, quit their legitimate spheres when they prolonged the intellectual vision beyond the boundary of experience, and propounded the nebular theory? Accepting that theory as probable, is it not permitted to a scientific man to follow up in idea the series of changes associated with the condensation of the nebulæ; to picture the successive detachment of planets and moons, and the relation of all of them to the sun? If I look upon our earth, with its orbital revolution and axial rotation, as one small issue of the process which made the solar system what it is, will any theologian deny my right to entertain and express this theoretic view? Time was when a multitude of theologians would be found to do so—when that arch-enemy of science which now vaunts its tolerance would have made a speedy end of the man who might venture to publish any opinion of the kind. But that time, unless the world is caught strangely slumbering, is forever past.

As regards inorganic Nature, then, I may traverse, without let or hinderance, the whole distance which separates the nebulæ from the worlds of to-day. But only a few years ago this now conceded ground of science was

theological ground. I could by no means regard this as the final and sufficient concession of theology; and at Belfast I thought it not only my right but my duty to state that, as regards the organic world, we must enjoy the freedom which we have already won in regard to the inorganic. I could not discern the shred of a title-deed which gave any man, or any class of men, the right to open the door of one of these worlds to the scientific searcher, and to close the other against him. And I considered it frankest, wisest, and in the long-run most conducive to permanent peace, to indicate without evasion or reserve the ground that belongs to Science, and to which she will assuredly make good her claim.

Considering the freedom allowed to all manner of opinions in England, surely this was no extravagant position for me to assume. I have been reminded that an eminent predecessor of mine in the Presidential chair expressed a totally different view of the Cause of things from that enunciated by me. In doing so he transgressed the bounds of science at least as much as I did; but nobody raised an outcry against him. The freedom that he took I claim, but in a more purely scientific direction. And looking at what I must regard as the extravagances of the religious world; at the very inadequate and foolish notions concerning this universe entertained by the majority of our religious teachers; at the waste of energy on the part of good men over things unworthy, if I might say it without discourtesy, of the attention of enlightened heathens: the fight about the fripperies of Ritualism, the mysteries of the Eucharist, and the Athanasian Creed; the forcing on the public view of Pontigny Pilgrimages; the dating of historic epochs from the definition of the Immaculate Conception; the proclamation of the Divine Glories of the Sacred Heart—standing in the midst of these insanities, it did not appear to me extravagant //

to claim the public tolerance for an hour and a half for the statement of what I hold to be more reasonable views: views more in accordance with the verities which science has brought to light, and which many weary souls would, I thought, welcome with gratification and relief.

But to come to closer quarters. The expression to which the most violent exception has been taken is this: "Abandoning all disguise, the confession I feel bound to make before you is that I prolong the vision backward across the boundary of the experimental evidence, and discern in that Matter which we, in our ignorance, and notwithstanding our professed reverence for its Creator, have hitherto covered with opprobrium, the promise and potency of every form and quality of life." To call it a "chorus of dissent," as my Catholic critic does, is a mild way of describing the storm of opprobrium with which this statement has been assailed. But the first blast of passion being past, I hope I may again ask my opponents to consent to reason. First of all, I am blamed for crossing the boundary of the experimental evidence. I reply that this is the habitual action of the scientific mind—at least of that portion of it which applies itself to physical investigation. Our theories of light, heat, magnetism, and electricity, all imply the crossing of this boundary. My paper on the "Scientific Use of the Imagination" illustrates this point in the amplest manner; and in the lecture appended to this Address I have sought, incidentally, to make clear how in physics the experiential incessantly leads to the ultra-experiential; how out of experience there always grows something finer than mere experience and that in their different powers of ideal extension consists for the most part the difference between the great and the mediocre investigator. The kingdom of science, then, cometh not by observation and experiment alone,

but is completed by fixing the roots of observation and experiment in a region inaccessible to both, and in dealing with which we are forced to fall back upon the picturing power of the mind.

Passing the boundary of experience, therefore, does not, in the abstract, constitute a sufficient ground for censure. There must have been something in my particular mode of crossing it which provoked this tremendous "chorus of dissent."

Let us calmly reason the point out. I hold the nebular theory as it was held by Kant, Laplace, and William Herschel, and as it is held by the best scientific intellects of to-day. According to it, our sun and planets were once diffused through space as an impalpable haze, out of which, by condensation, came the solar system. What caused the haze to condense? Loss of heat. What rounded the sun and planets? That which rounds a tear—molecular force. For æons, the immensity of which overwhelms man's conceptions, the earth was unfit to maintain what we call life. It is now covered with visible living things. They are not formed of matter different from that of the earth around them. They are, on the contrary, bone of its bone and flesh of its flesh. How were they introduced? Was life implicated in the nebulae—as part, it may be, of a vaster and wholly Incomprehensible Life; or is it the work of a Being standing outside the nebulae, who fashioned it as a potter does his clay, but whose own origin and ways are equally past finding out? As far as the eye of science has hitherto ranged through Nature no intrusion of purely creative power into any series of phenomena has ever been observed. The assumption of such a power to account for special phenomena has always proved a failure. It is opposed to the very spirit of science, and I therefore assumed the responsibility of holding up in contrast with it that method of Nature which it has been the vocation and tri-

umph of science to disclose, and in the application of which we can alone hope for further light. Holding, then, that the nebulae and all subsequent life stand to each other in the relation of the germ to the finished organism, I reaffirm here, not arrogantly, or defiantly, but without a shade of indistinctness, the position laid down in Belfast.

Not with the vagueness belonging to the emotions, but with the definiteness belonging to the understanding, the scientific man has to put to himself these questions regarding the introduction of life upon the earth. He will be the last to dogmatize upon the subject, for he knows best that certainty is here for the present unattainable. His refusal of the creative hypothesis *is less an assertion of knowledge than a protest against the assumption of knowledge* which must long, if not forever, lie beyond us, and the claim to which is the source of manifold confusion upon earth. With a mind open to conviction he asks his opponents to show him an authority for the belief they so strenuously and so fiercely uphold. They can do no more than point to the Book of Genesis, or some other portion of the Bible. Profoundly interesting and indeed pathetic to me are those attempts of the opening mind of man to appease its hunger for a Cause. But the Book of Genesis has no voice in scientific questions. To the grasp of geology, which it resisted for a time, it at length yielded like potter's clay; its authority as a system of cosmogony being discredited on all hands by the abandonment of the obvious meaning of its writer. It is a poem, not a scientific treatise. In the former aspect it is forever beautiful; in the latter aspect it has been, and it will continue to be, purely obstructive and hurtful. To *knowledge* its value has been negative, leading, in rougher ages than ours, to physical, and even in our own "free" age, as exemplified in my own case, to moral violence.

To the student of cause and effect no incident connected with the proceedings at Belfast is more instructive than the deportment of the Catholic hierarchy of Ireland; a body usually wise enough not to confer notoriety upon an adversary by imprudently denouncing him. The *Times*, to which I owe nothing on the score of sympathy, but a great deal on the score of fair play, where so much has been unfair, thinks that the Irish Cardinal, Archbishops, and Bishops, in their recent manifesto, promptly and adroitly employed a weapon which I, at an unlucky moment, had placed in their hands. The antecedents of their action cause me to regard it in a different light; and a brief reference to these antecedents will, I think, illuminate not only their proceedings regarding Belfast, but other doings which have been recently noised abroad.

Before me lies a document, bearing the date of November, 1873, but which, after appearing for a moment, unaccountably vanished from public view. It is a Memorial addressed by Seventy of the Students and Ex-students of the Catholic University in Ireland to the Episcopal Board of the University. This is the plainest and bravest remonstrance ever addressed by Irish laymen to their spiritual pastors and masters. It expresses the profoundest dissatisfaction with the curriculum marked out for the students of the University; setting forth the extraordinary fact that the lecture-list for the faculty of Science, published a month before they wrote, did not contain the name of a single Professor of the Physical or Natural Sciences.

The memorialists forcibly deprecate this, and dwell upon the necessity of education in Science. "The distinguishing mark of this age is its ardor for science. The natural sciences have, within the last fifty years, become the chiefest study in the world; they are in our time pursued with an activity unparalleled in the history of man-

kind. Scarce a year now passes without some discovery being made in these sciences which, as with the touch of a magician's wand, shivers to atoms theories formerly deemed unassailable. It is through the physical and natural sciences that the fiercest assaults are now made on our religion. No more deadly weapon is used against our faith than the facts incontestably proved by modern researches in science."

Such statements must be the reverse of comfortable to a number of gentlemen who, trained in the philosophy of Albertus Magnus and Thomas Aquinas, have been accustomed to the unquestioning submission of all other sciences to their divine science of Theology. But something more remains: "One thing seems certain," say the memorialists, viz., "that if chairs for the physical and natural sciences be not soon founded in the Catholic University, very many young men will have their faith exposed to dangers which the creation of a school of science in the University would defend them from. For our generation of Irish Catholics are writhing under the sense of their inferiority in science, and are determined that such inferiority shall not long continue; and so, if scientific training be unattainable at our University, they will seek it at Trinity, or at the Queen's Colleges, in not one of which is there a Catholic professor of Science."

Those who imagined the Catholic University at Kensington to be due to the spontaneous recognition on the part of the Roman hierarchy of the intellectual needs of the age, will derive enlightenment from this, and still more from what follows; for the most formidable threat remains. To the picture of Catholic students seceding to Trinity and the Queen's Colleges, the memorialists add this darkest stroke of all: "They will, in the solitude of their own homes, unaided by any guiding advice, devour the works of Hæckel, Darwin, Huxley, Tyndall, and Lyell; works

innocuous if studied under a professor who would point out the difference between established facts and erroneous inferences, but which are calculated to sap the faith of a solitary student, deprived of a discriminating judgment to which he could refer for a solution of his difficulties."

In the light of the knowledge given by this courageous memorial, and of similar knowledge otherwise derived, the recent Catholic manifesto did not at all strike me as a chuckle over the mistake of a maladroit adversary, but rather as an evidence of profound uneasiness on the part of the Cardinal, the Archbishops, and the Bishops who signed it. They acted toward it, however, with their accustomed practical wisdom. As one concession to the spirit which it embodied, the Catholic University at Kensington was brought forth, apparently as the effect of spontaneous inward force, and not of outward pressure which was rapidly becoming too formidable to be successfully opposed.

The memorialists point with bitterness to the fact that "the name of no Irish Catholic is known in connection with the physical and natural sciences." But this, they ought to know, is the complaint of free and cultivated minds wherever the Priesthood exercises dominant power. Precisely the same complaint has been made with respect to the Catholics of Germany. The great national literature and scientific achievements of that country in modern times is almost wholly the work of Protestants; a vanishingly small fraction of it only being derived from members of the Roman Church, although the number of these in Germany is at least as great as that of the Protestants. "The question arises," says a writer in a German periodical, "what is the cause of a phenomenon so humiliating to the Catholics? It cannot be referred to want of natural endowment due to climate (for the Protestants of Southern Germany have contributed powerfully to the

creations of the German intellect), but purely to outward circumstances. And these are readily discovered in the pressure exercised for centuries by the Jesuitical system, which has crushed out of Catholics every tendency to free mental productiveness." It is, indeed, in Catholic countries that the weight of ultramontaniam has been most severely felt. It is in such countries that the very finest spirits, who have dared, without quitting their faith, to plead for freedom or reform, have suffered extinction. The extinction, however, was more apparent than real, and Hermes, Hirscher, and Günther, though individually broken and subdued, prepared the way in Bavaria for the persecuted but unflinching Frohschammer, for Döllinger, and for the remarkable liberal movement of which Döllinger is the head and guide.

Though managed and moulded for centuries to an obedience unparalleled in any other country, except Spain, the Irish intellect is beginning to show signs of independence, demanding a diet more suited to its years than the pabulum of the Middle Ages. As for the recent manifesto where Pope, Cardinal, Archbishops, and Bishops, may now be considered as united in one grand anathema, its character and fate are shadowed forth by the Vision of Nebuchadnezzar recorded in the Book of Daniel. It resembles the image, whose form was terrible, but the gold, and silver, and brass, and iron of which rested upon feet of clay. And a stone smote the feet of clay, and the iron, and the brass, and the silver, and the gold, were broken in pieces together, and became like the chaff of the summer threshing-floors, and the wind carried them away.

There is something in Jesuitism profoundly interesting, and at the same time clearly intelligible, to men of strong intellects and determined will. The weaker spirits, of whom there are many among us, it simply fascinates and subdues. From the study of his own inward forces, and

their possible misapplication, the really determined man can understand how possible it is, having once chosen an aim, to reach it in defiance of every moral restraint—to trample under foot, by an obstinate effort of volition, the dictates of honesty, honor, mercy, and truth; and to pursue the desired end, if need be, through their destruction. This force of will, relentlessly applied, and working through submissive instruments, is the strength of Jesuitism.

Pure, honest fanaticism often adds itself to this force, and sometimes acts as its equivalent. Illustrations of this are not far to seek, for the dazzling prize of England, converted to the true faith, is sufficient to turn weak heads. When it is safely caged it is interesting to watch the operations of this form of energy. In a sermon on the Perpetual Office of the Council of Trent, preached before the Right Reverend Fathers assembled in Synod, the Archbishop of Westminster has given us the following sample of it: "As the fourth century was glorious by the definition of the Godhead and the Consubstantial Son, and the fifth by that of His two perfect natures, and the thirteenth by that of the Procession of the Holy Ghost, so the nineteenth will be glorious by the definition of the Immaculate Conception. Right Rev. Fathers," continues this heated proselyte, "you have to call the legionaries and the tribunes, the patricians and the people, of a conquering race, and to subdue, change, and transform them one by one to the likeness of the Son of God. Surely a soldier's eye and a soldier's heart would choose by intuition this field of England for the warfare of the faith. It is the head of Protestantism, the centre of its movements, and the stronghold of its powers. Weakened in England, it is paralyzed everywhere; conquered in England, it is conquered throughout the world. Once overthrown here, all is but a war of detail: it is the key of the whole position of modern error." This is the propaganda which England has to stem. What

mere stubble a *dilettante* ritualist or a weak-headed nobleman must be when acted upon by this fiery breath of fanaticism! The only wonder is that weak heads, which are so assiduously and deliberately sought out, are not more plentiful than they are.

Monsignor Capel has recently been good enough to proclaim at once the friendliness of his Church toward true science, and her right to determine what true science is. Let us dwell for a moment on the historic proofs of her scientific competence. When Halley's comet appeared in 1456, it was regarded as the harbinger of God's vengeance, the dispenser of war, pestilence, and famine, and, by order of the Pope, all the church-bells of Europe were rung to scare the monster away. An additional daily prayer was added to the supplications of the faithful. The comet in due time disappeared, and the faithful were comforted by the assurance that, as in previous instances relating to eclipses, droughts, and rains, so also as regards this "nefarious" comet, victory had been vouchsafed to the Church.

Both Pythagoras and Copernicus had taught the heliocentric doctrine—that the earth revolved round the sun. In the exercise of her right to determine what true science is, the Church, in the Pontificate of Paul V., stepped in, and, by the mouth of the holy Congregation of the Index, delivered, on March 5, 1616, the following decree:

And whereas it hath also come to the knowledge of the said holy congregation that the false Pythagorean doctrine of the mobility of the earth and the immobility of the sun, entirely opposed to Holy Writ, which is taught by Nicolas Copernicus, is now published abroad and received by many—in order that this opinion may not further spread, to the damage of Catholic truth, it is ordered that this and all other books teaching the like doctrine be suspended, and by this decree they are all respectively suspended, forbidden, and condemned.

Though often quoted, I thought the never-dying flavor of this celebrated decree would not be disagreeable to some of my readers. It is pleasant to be able to say that the very doctrine here pronounced "false," "opposed to Holy Writ," and "damaging to Catholic truth," Science has persuaded even Monsignor Capel to accept.

But it is a constant *tendency* rather than a single fact which is chiefly important here, and a few jottings will show with sufficient plainness what this tendency has ever been. The fate of Giordano Bruno is referred to in the following pages. For a further reference to him I would direct the reader to the brief Appendix introduced at page 66. The case of Galileo is also touched upon; and to this it may be added here that he died the prisoner of the Inquisition, which, true to its instincts, followed him beyond the grave, disputing his right to make a will, and denying him burial in consecrated ground.¹

Again, the famous Academia del Cimento was established at Florence in 1657, and held its meetings in the ducal palace. It lasted ten years, and was then suppressed at the instance of the Papal Government. As an equivalent, the brother of the Grand-Duke was made a cardinal. The Jesuits were less successful in Bavaria in 1759; for they did their best, but vainly, to prevent the founding of the Academy of Sciences in Munich. Their waning power was indicated by this fact, and in 1773 Pope Clement XIV. dissolved the order. The decree was to be "irrevocable;" the Society of Jesus was "never to be restored;" still, in 1814, an infallible follower of Clement, Pope Pius VII., undid the work of his equally infallible predecessor, and revoked his decree.

But why go back to 1456? Far be it from me to charge by-gone sins upon Monsignor Capel's Church, were

¹ Draper, "Trial of Galileo."

it not for her practices to-day. The most applauded dogmatist of the Jesuits is, I am informed, Perrone. Thirty editions of a work of his have been scattered abroad in all lands by the Society to which he belongs. His notions of physical astronomy are quite in accordance with those of 1456. He teaches boldly that "God does not rule by universal law that when God [obviously a Big Man] orders a given planet to stand still he does not detract from any law passed by himself, but orders that planet to move round the sun for such and such a time, then to stand still, and then again to move, as his pleasure may be." Jesuitism proscribed Frohschammer for questioning its favorite dogma that every human soul was created by a direct supernatural act of God, and for asserting that man, body and soul, came from his parents. This is the Society that now strives for universal power; it is from it, as Monsignor Capel graciously informs us, that we are to learn what is allowable in science and what is not!

In the face of such facts, which might be multiplied at will, it requires extraordinary bravery of mind, or a reliance upon public ignorance almost as extraordinary, to make the claims made by Monsignor Capel for his Church.

A German author, speaking of one who has had bitter experience in this line, describes those Catholic writers who refuse to submit to the Congregation of the Index as outlawed; fair subjects for moral assassination.¹ This is very strong; and still, judging from my own small experi-

¹ See the case of Frohschammer as sketched by a friend in the Preface to "Christenthum und die moderne Wissenschaft." His enemies contrived to take his bread, in great part, away, but they failed to subdue him, and not even the Pope's Nuncio could prevent five hundred students of the University of Munich from signing an Address to their Professor.

ence, not too strong. In reference to this point I would ask indulgence for a brief personal allusion here. It will serve a twofold object, one of which will be manifest, the other being reserved for possible future reference. Sprung from a source to which the Bible was specially dear, my early training was confined almost exclusively to it. Born in Ireland, I, like my predecessors for many generations, was taught to hold my own against the Church of Rome. I had a father whose memory ought to be to me a stay, and an example of unbending rectitude and purity of life. The small stock to which he belonged were scattered with various fortunes along that eastern rim of Leinster, from Wexford upward, to which they crossed from the Bristol Channel. My father was the poorest of them. Still, in his socially low but mentally and morally independent position, by his own inner energies and affinities, he obtained a knowledge of history which would put mine to shame; while the whole of the controversy between Protestantism and Romanism was at his fingers' ends. At the present moment the works and characters which occupied him come, as far-off recollections, to my mind: Claude and Bossuet, Chillingworth and Nott, Tillotson, Jeremy Taylor, Challoner and Milner, Pope and McGuire, and others whom I have forgotten, or whom it is needless to name. Still this man, so charged with the ammunition of controversy, was so respected by his Catholic fellow-townsmen, that they one and all put up their shutters when he died.

With such a preceptor, and with an hereditary interest in the Papal controversy, I naturally mastered it. I did not confine myself to the Protestant statement of the question, but made myself also acquainted with the arguments of the Church of Rome. I remember to this hour the interest and surprise with which I read Challoner's "Catholic Christian Instructed," and on the border-line between boyhood and manhood I was to be found taking

part in controversies in which the rival faiths were pitted against each other. I sometimes took the Catholic side, and gave my Protestant antagonist considerable trouble. The views of Irish Catholics became thus intimately known to me, and there was no doctrine of Protestantism which they more emphatically rejected, and the ascription of which to them they resented more warmly, than the doctrine of the Pope's personal infallibility. Yet in the face of this knowledge it was obstinately asserted and reasserted in my presence some time ago, by a Catholic priest, that the doctrine of the infallibility of the Pope had always been maintained in Ireland.¹

But this is an episode, intended to disabuse those who, in this country or the United States, may have been misled in regard to the personal points referred to. I now return to the impersonal. The course of life upon earth, as far as Science can see, has been one of amelioration—a steady advance on the whole from the lower to the higher. The continued effort of animated Nature is to improve its conditions and raise itself to a loftier level. In man improvement and amelioration depend largely upon the growth of conscious knowledge, by which the errors of ignorance are continually moulted and truth is organized. It is assuredly the advance of knowledge that has given a materialistic color to the philosophy of this age. Materialism is therefore not a thing to be mourned over, but to be honestly considered—accepted if it be wholly true, rejected if it be wholly false, wisely sifted and turned to account if it embrace a mixture of truth and error. Of late years the study of the nervous system and of its re-

¹ On a memory which dates back to my fifteenth year, when I first read the discussion between Mr. Pope and Father McGuire, I should be inclined to rely for proof that the Catholic clergyman, in that discussion, and in the name of his Church, repudiated the doctrine of personal infallibility.

lation to thought and feeling has profoundly occupied inquiring minds. It is our duty not to shirk—it ought rather to be our privilege to accept—the established results of such inquiries, for here assuredly our ultimate weal depends upon our loyalty to the truth. Instructed as to the control which the nervous system exercises over man's moral and intellectual nature, we shall be better prepared, not only to mend their manifold defects, but also to strengthen and purify both. Is mind degraded by this recognition of its dependence? Assuredly not. Matter, on the contrary, is raised to the level it ought to occupy, and from which timid ignorance would remove it.

But the light is dawning, and it will become stronger as time goes on. Even the Brighton Congress affords evidence of this. From the manifold confusions of that assemblage my memory has rescued two items which it would fain preserve: the recognition of a relation between Health and Religion, and the address of the Rev. Harry Jones. Out of the conflict of vanities his words emerge fresh, healthy, and strong, because undrugged by dogma, coming directly from the warm brain of one who knows what practical truth means, and who has faith in its vitality and inherent power of propagation. I wonder is he less effectual in his ministry than his more embroidered colleagues? It surely behooves our teachers to come to some definite understanding as to this question of health; to see how, by inattention to it, we are defrauded, negatively and positively: negatively, by the privation of that "sweetness and light" which is the natural concomitant of good health; positively, by the insertion into life of cynicism, ill-temper, and a thousand corroding anxieties which good health would dissipate. We fear and scorn "materialism." But he who knew all about it, and could apply his knowledge, might become the preacher of a new gospel. Not, however, through the ecstatic moments of the individual does

such knowledge come, but through the revelations of science, in connection with the history of mankind.

Why should the Roman Catholic Church call gluttony a mortal sin? Why should prayer and fasting occupy a place in the disciplines of religion? What is the meaning of Luther's advice to the young clergyman who came to him, perplexed with the difficulty of predestination and election, if it be not that, in virtue of its action upon the brain, when wisely applied, there is moral and religious virtue even in a hydro-carbon? To use the old language, food and drink are creatures of God, and have therefore a spiritual value. The air of the Alps would be augmented tenfold in purifying power if this truth were recognized. Through our neglect of the monitions of a reasonable materialism we sin and suffer daily. I might here point to the train of deadly disorders over which science has given modern society such control—disclosing the lair of the material enemy, insuring his destruction, and thus preventing that moral squalor and hopelessness which habitually tread on the heels of epidemics in the case of the poor.

Rising to higher spheres, the visions of Swedenborg, and the ecstasy of Plotinus and Porphyry, are phases of that psychical condition, obviously connected with the nervous system and state of health, on which is based the Vedic doctrine of the absorption of the individual into the universal soul. Plotinus taught the devout how to pass into a condition of ecstasy. Porphyry complains of having been only once united to God in eighty-six years, while his master Plotinus had been so united six times in sixty years.¹ A friend who knew Wordsworth informs me that the poet, in some of his moods, was accustomed to seize hold of an external object to assure himself of his own bodily existence. The "entranced mind" of Mr.

¹ See Dr. Draper's important work, "Conflict between Religion and Science."

Page-Roberts, referred to so admiringly by the *Spectator*, is a similar phenomenon. No one, I should say, has had a wider experience in this field than Mr. Emerson. As states of consciousness those phenomena have an undisputed reality, and a substantial identity. They are, however, connected with the most heterogeneous objective conceptions. Porphyry wrote against Christianity; Mr. Page-Roberts is a devout Christian. But notwithstanding the utter discordance of these objective conceptions, their subjective experiences are similar, because of the similarity of their finely-strung nervous organizations.

But admitting the practical facts, and acting on them, there will always remain ample room for speculation. Take the argument of the Lucretian introduced at page 28 of the following Address. As far as I am aware, not one of my assailants has attempted to answer it. Some of them, indeed, rejoice over the ability displayed by Bishop Butler in rolling back a difficulty on his opponent; and they even imagine that it is the Bishop's own argument that is there employed. Instructed by self-knowledge, they can hardly credit me with the wish to state both sides of the question at issue; and to show by a logic stronger than Butler ever used the overthrow which awaits any doctrine of materialism which is based upon the definitions of matter habitually received. But the raising of a new difficulty does not abolish—does not even lessen—the old one, and the argument of the Lucretian remains untouched by any thing the Bishop has said or can say.

And here it may be permitted me to add a word to an important controversy now going on. In an article on Physics and Metaphysics, published in the *Saturday Review* more than fourteen years ago, I ventured to state thus the relation between physics and consciousness: "The philosophy of the future will assuredly take more account than that of the past of the relation of thought and

feeling to physical processes ; and it may be that the qualities of Mind will be studied through the organism as we now study the character of Force through the affections of ordinary matter. We believe that every thought and every feeling has its definite mechanical correlative in the nervous system—that it is accompanied by a certain separation and remmarshaling of the atoms of the brain.

“This latter process is purely physical ; and were the faculties we now possess sufficiently strengthened, without the creation of any new faculty, it would doubtless be within the range of our augmented powers to infer from the molecular state of the brain the character of the thought acting upon it, and, conversely, to infer from the thought the exact corresponding molecular condition of the brain. We do not say—and this, as will be seen, is all-important—that the inference here referred to would be an *a priori* one. What we say is that by observing, with the faculties we assume, the state of the brain, and the associated mental affections, both might be so tabulated side by side, that if one were given, a mere reference to the table would declare the other.

“Given the masses of the planets and their distances asunder, and we can infer the perturbations consequent on their mutual attractions. Given the nature of a disturbance in water, air, or ether, and from the physical properties of the medium we can infer how its particles will be affected. The mind runs along the line of thought which connects the phenomena, and, from beginning to end, finds no break in the chain. But, when we endeavor to pass by a similar process from the phenomena of physics to those of thought, we meet a problem which transcends any conceivable expansion of the powers we now possess. We may think over the subject again and again—it eludes all intellectual presentation—we stand, at length, face to face with the Incomprehensible.”

The discussion above referred to turns on the question: Do states of consciousness enter as links in the chain of antecedence and sequence which give rise to bodily actions and to other states of consciousness; or are they merely by-products, which are not essential to the physical processes going on in the brain? Now, it is perfectly certain that we have no power of imagining states of consciousness interposed between the molecules of the brain, and influencing the transference of motion among the molecules. The thought "eludes all mental presentation;" and hence the logic seems of iron strength which claims for the brain an automatic action, uninfluenced by states of consciousness. But it is, I believe, admitted by those who hold the automaton-theory that states of consciousness are *produced* by the marshaling of the molecules of the brain; and this production of consciousness by molecular motion is certainly quite as unthinkable as the production of molecular motion by consciousness. If, therefore, unthinkability be the proper test, we must equally reject both classes of phenomena. I, for my part, reject neither, and thus stand in the presence of two Incomprehensibles, instead of one Incomprehensible. While accepting fearlessly the facts of materialism dwelt upon in these pages, I bow my head in the dust before that mystery of the brain, which has hitherto defied its own penetrative power, and which may ultimately resolve itself into a demonstrable impossibility of self-penetration.¹

But, whatever be the fate of theory, the practical monitions are plain enough, which declare that on our dealings with matter depends our weal or woe, physical and moral. The state of mind which rebels against the recognition of the claims of "materialism" is not unknown to me. I can remember a time when I regarded my body as a weed, so much more highly did I prize the conscious strength and

¹ See Appendix, "Scientific Materialism."

pleasure derived from moral and religious feeling, which, I may add, was mine without the intervention of dogma. The error was not an ignoble one, but this did not save it from the penalty attached to error. Saner knowledge taught me that the body is no weed, and that if it were treated as such it would infallibly avenge itself. Am I personally lowered by this change of front? Not so. Give me their health, and there is no spiritual experience of those earlier years—no resolve of duty, or work of mercy, no act of self-denial, no solemnity of thought, no joy in the life and aspects of Nature, that would not still be mine. And this without the least reference or regard to any purely personal reward or punishment looming in the future.

As I close these remarks, the latest melancholy wail of the Bishop of Peterborough reaches my ears. Notwithstanding all their “expansiveness,” both he and his brother of Manchester appear, alas! to know as little of the things which belong to our peace as that wild ritualist who, a day or two ago, raised the cry of “excommunicated heretic!” against the Bishop of Natal. Happily we have among us our Jowetts and our Stanleys, not to mention other brave men, who see more clearly the character and magnitude of the coming struggle; and who believe undoubtingly that out of it the truths of science will emerge with healing in their wings. Such men must increase, if the vast material resources of the Church of England are not to fall into the hands of persons who may be classed under the respective heads of *weak* and *infatuated*.

And now I have to utter a “farewell,” free from bitterness, to all my readers—thanking my friends for a sympathy more steadfast, I would fain believe, if less noisy, than the antipathy of my foes; commending to these, moreover, a passage from Bishop Butler, which they have

either not read or failed to take to heart. "It seems," saith the Bishop, "that men would be strangely headstrong and self-willed, and disposed to exert themselves with an impetuosity which would render society insupportable, and the living in it impracticable, were it not for some acquired moderation and self-government, some aptitude and readiness in restraining themselves, and concealing their sense of things." In this respect, at least, his Grace the Archbishop of Canterbury has set a good example.

JOHN TYNDALL.

ATHENÆUM CLUB,
December 5, 1874.

P R E F A C E .

AT the request of my publishers, strengthened by the expressed desire of many correspondents, I reprint, with a few slight alterations, this Address.

It was written under some disadvantages this year in the Alps, and sent by installments to the printer. When read subsequently it proved too long for its purpose, and several of its passages were accordingly struck out. Some of them are here restored.

It has provoked an unexpected amount of criticism. This, in due time, will subside; and I confidently look forward to a calmer future for a verdict, founded not on imaginary sins, but on the real facts of the case.

Of the numberless strictures and accusations, some of them exceeding fierce, of which I have been, and continue to be, the object, I refrain from speaking at any length. To one or two of them, however, out of respect for their sources, I would ask permission briefly to refer.

An evening paper of the first rank, after the ascription of various more or less questionable aims and motives, proceeds to the imputation that I permitted the cheers of my audience to "stimulate" me to the utterance of words which no right-minded man, without a sense of the gravest responsibility, could employ. I trust the author of this charge will allow me in all courtesy to assure him that the

words ascribed by him to the spur of the moment were written in Switzerland; that they stood in the printed copy of the Address from which I read; that they evoked no "cheers," but a silence far more impressive than cheers; and that, finally, as regards both approbation and the reverse, my course had been thought over and decided long before I ventured to address a Belfast audience.

A writer in a most able theological journal represents me as "patting religion on the back." The thought of doing so is certainly his, not mine. The facts of religious feeling are to me as certain as the facts of physics. But the world, I hold, will have to distinguish between the feeling and its forms, and to vary the latter in accordance with the intellectual condition of the age.

I am unwilling to dwell upon statements ascribed to eminent men, which may be imperfectly reported in the newspapers, and I therefore pass over a recent sermon attributed to the Bishop of Manchester with the remark, that one engaged so much as he is in busy and, I doubt not on the whole, beneficent outward life, is not likely to be among the earliest to discern the more inward and spiritual signs of the times, or to prepare for the condition which they foreshadow.

In a recent speech at Dewsbury, the Dean of Manchester is reported to have expressed himself thus: "The professor" (myself) "ended a most remarkable and eloquent speech by terming himself a material atheist." My attention was drawn to Dean Cowie's statement by a correspondent, who described it as standing "conspicuous among the strange calumnies" with which my words have been assailed. For myself I use no language which could imply that I am hurt by such attacks. They have lost their power to wound or injure. So likewise as regards a resolution recently passed by the Presbytery of Belfast, in which Prof. Huxley and myself are spoken of as

"ignoring the existence of God, and advocating pure and simple materialism;" had the possessive pronoun "our" preceded "God," and had the words "what we consider" preceded "pure," this statement would have been objectively true; but to make it so this qualification is required.

Cardinal Cullen, I am told, is also actively engaged in erecting spiritual barriers against the intrusion of "infidelity" into Ireland. His eminence, I believe, has reason to suspect that the Catholic youth around him are not proof to the seductions of science. Strong as he is, I believe him to be impotent here. The youth of Ireland will imbibe science, however slowly; they will be leavened by it, however gradually. And to its inward modifying power among Catholics themselves, rather than to any Protestant propagandism, or other external influence, I look for the abatement of various incongruities; among them, of those mediæval proceedings which, to the scandal and amazement of our nineteenth-century intelligence, have been revived among us during the last two years.

In connection with the charge of atheism, I would make one remark. Christian men are proved by their writings to have their hours of weakness and of doubt, as well as their hours of strength and of conviction; and men like myself share, in their own way, these variations of mood and tense. Were the religious views of many of my assailants the only alternative ones, I do not know how strong the claims of the doctrine of "material atheism" upon my allegiance might be. Probably they would be very strong. But, as it is, I have noticed during years of self-observation that it is not in hours of clearness and vigor that this doctrine commends itself to my mind; that in the presence of stronger and healthier thought it ever dissolves and disappears, as offering no solution of the mystery in which we dwell, and of which we form a part.

To coarser attacks and denunciations I pay no atten-

tion; nor have I any real reason to complain of revilings addressed to me, which professing Christians, as could readily be proved, do not scruple to use toward each other. The more agreeable task remains to me of thanking those who have tried, however hopelessly, to keep accusation within the bounds of justice, and who, privately, and at some risk in public, have honored me with the expression of their sympathy and approval.

JOHN TYNDALL.

ATHENÆUM CLUB, }
September 15, 1874. }

ADDRESS.

AN impulse inherent in primeval man turned his thoughts and questionings betimes toward the sources of natural phenomena. The same impulse, inherited and intensified, is the spur of scientific action to-day. Determined by it, by a process of abstraction from experience we form physical theories which lie beyond the pale of experience, but which satisfy the desire of the mind to see every natural occurrence resting upon a cause. In forming their notions of the origin of things, our earliest historic (and doubtless, we might add, our prehistoric) ancestors pursued, as far as their intelligence permitted, the same course. They also fell back upon experience, but with this difference—that the particular experiences which furnished the web and woof of their theories were drawn, not from the study of Nature, but from what lay much closer to them, the observation of men. Their theories accordingly took an anthropomorphic form. To supersensual beings, which, “however potent and invisible, were nothing but a species of human creatures, perhaps raised from among mankind, and retaining all human passions and appetites,”¹ were handed over the rule and governance of natural phenomena.

Tested by observation and reflection, these early notions failed in the long-run to satisfy the more penetrating

¹ Hume, “Natural History of Religion.”

intellects of our race. Far in the depths of history we find men of exceptional power differentiating themselves from the crowd, rejecting these anthropomorphic notions, and seeking to connect natural phenomena with their physical principles. But long prior to these purer efforts of the understanding the merchant had been abroad, and rendered the philosopher possible; commerce had been developed, wealth amassed, leisure for travel and speculation secured, while races educated under different conditions, and therefore differently informed and endowed, had been stimulated and sharpened by mutual contact. In those regions where the commercial aristocracy of ancient Greece mingled with its Eastern neighbors, the sciences were born, being nurtured and developed by free-thinking and courageous men. The state of things to be displaced may be gathered from a passage of Euripides quoted by Hume: "There is nothing in the world; no glory, no prosperity. The gods toss all into confusion; mix every thing with its reverse, that all of us, from our ignorance and uncertainty, may pay them the more worship and reverence." Now, as science demands the radical extirpation of caprice and the absolute reliance upon law in Nature, there grew with the growth of scientific notions a desire and determination to sweep from the field of theory this mob of gods and demons, and to place natural phenomena on a basis more congruent with themselves.

The problem which had been previously approached from above was now attacked from below; theoretic effort passed from the super- to the sub-sensible. It was felt that to construct the universe in idea it was necessary to have some notion of its constituent parts—of what Lucretius subsequently called the "First Beginnings." Abstracting again from experience, the leaders of scientific speculation reached at length the pregnant doctrine of

atoms and molecules, the latest developments of which were set forth with such power and clearness at the last meeting of the British Association. Thought, no doubt, had long hovered about this doctrine before it attained the precision and completeness which it assumed in the mind of Democritus,¹ a philosopher who may well for a moment arrest our attention. "Few great men," says Lange, a non-materialist, in his excellent "History of Materialism," to the spirit and to the letter of which I am equally indebted, "have been so despitely used by history as Democritus. In the distorted images sent down to us through unscientific traditions there remains of him almost nothing but the name of 'the laughing philosopher,' while figures of immeasurably smaller significance spread themselves out at full length before us." Lange speaks of Bacon's high appreciation of Democritus—for ample illustrations of which I am indebted to my excellent friend Mr. Spedding, the learned editor and biographer of Bacon. It is evident, indeed, that Bacon considered Democritus to be a man of weightier metal than either Plato or Aristotle, though their philosophy "was noised and celebrated in the schools, amid the din and pomp of professors." It was not they, but Genseric and Attila and the barbarians, who destroyed the atomic philosophy. "For, at a time when all human learning had suffered shipwreck, these planks of Aristotelian and Platonic philosophy, as being of a lighter and more inflated substance, were preserved and came down to us, while things more solid sank and almost passed into oblivion."

The son of a wealthy father, Democritus devoted the whole of his inherited fortune to the culture of his mind. He traveled everywhere; visited Athens when Socrates and Plato were there, but quitted the city without making himself known. Indeed, the dialectic strife in which Soc-

¹ Born 460 B. C.

rates so much delighted had no charms for Democritus, who held that "the man who readily contradicts and uses many words is unfit to learn any thing truly right." He is said to have discovered and educated Protagoras the sophist, being struck as much by the manner in which he, being a hewer of wood, tied up his fagots, as by the sagacity of his conversation. Democritus returned poor from his travels, was supported by his brother, and at length wrote his great work entitled "Diakosmos," which he read publicly before the people of his native town. He was honored by his countrymen in various ways, and died serenely at a great age.

The principles enunciated by Democritus reveal his uncompromising antagonism to those who deduced the phenomena of Nature from the caprices of the gods. They are briefly these: 1. From nothing comes nothing. Nothing that exists can be destroyed. All changes are due to the combination and separation of molecules. 2. Nothing happens by chance. Every occurrence has its cause from which it follows by necessity. 3. The only existing things are the atoms and empty space; all else is mere opinion. 4. The atoms are infinite in number and infinitely various in form; they strike together, and the lateral motion and whirlings which thus arise are the beginnings of worlds. 5. The varieties of all things depend upon the varieties of their atoms, in number, size, and aggregation. 6. The soul consists of fine, smooth, round atoms, like those of fire. These are the most mobile of all. They interpenetrate the whole body, and in their motions the phenomena of life arise. The first five propositions are a fair general statement of the atomic philosophy, as now held. As regards the sixth, Democritus made his fine smooth atoms do duty for the nervous system, whose functions were then unknown. The atoms of Democritus are individually without sensation; they combine in obedi-

ence to mechanical laws ; and not only organic forms, but the phenomena of sensation and thought, are the result of their combination.

That great enigma, "the exquisite adaptation of one part of an organism to another part, and to the conditions of life," more especially the construction of the human body, Democritus made no attempt to solve. Empedocles, a man of more fiery and poetic nature, introduced the notion of love and hate among the atoms to account for their combination and separation. Noticing this gap in the doctrine of Democritus, he struck in with the penetrating thought, linked, however, with some wild speculation, that it lay in the very nature of those combinations which were suited to their ends (in other words, in harmony with their environment) to maintain themselves, while unfit combinations, having no proper habitat, must rapidly disappear. Thus more than two thousand years ago the doctrine of the "survival of the fittest," which in our day, not on the basis of vague conjecture, but of positive knowledge, has been raised to such extraordinary significance, had received at all events partial enunciation.¹

Epicurus,² said to be the son of a poor school-master at Samos, is the next dominant figure in the history of the atomic philosophy. He mastered the writings of Democritus, heard lectures in Athens, went back to Samos, and subsequently wandered through various countries. He finally returned to Athens, where he bought a garden, and surrounded himself by pupils, in the midst of whom he lived a pure and serene life, and died a peaceful death. Democritus looked to the soul as the ennobling part of man ; even beauty without understanding partook of animalism. Epicurus also rated the spirit above the body ; the pleasure of the body was that of the moment, while the spirit could draw upon the future and the past. His

¹ Lange, second edition, p. 23.

² Born 342 B. C.

philosophy was almost identical with that of Democritus ; but he never quoted either friend or foe. One main object of Epicurus was to free the world from superstition and the fear of death. Death he treated with indifference. It merely robs us of sensation. As long as we are, death is not ; and, when death is, we are not. Life has no more evil for him who has made up his mind that it is no evil not to live. He adored the gods, but not in the ordinary fashion. The idea of divine power, properly purified, he thought an elevating one. Still he taught, "Not he is godless who rejects the gods of the crowd, but rather he who accepts them." The gods were to him eternal and immortal beings, whose blessedness excluded every thought of care or occupation of any kind. Nature pursues her course in accordance with everlasting laws, the gods never interfering. They haunt

"The lucid interspace of world and world
Where never creeps a cloud or moves a wind,
Nor ever falls the least white star of snow,
Nor ever lowest roll of thunder moans,
Nor sound of human sorrow mounts to mar
Their sacred everlasting calm."¹

Lange considers the relation of Epicurus to the gods subjective ; the indication probably of an ethical requirement of his own nature. We cannot read history with open eyes, or study human nature to its depths, and fail to discern such a requirement. Man never has been, and he never will be, satisfied with the operations and products of the understanding alone ; hence physical science cannot cover all the demands of his nature. But the history of the efforts made to satisfy these demands might be broadly described as a history of errors—the error, in great part, consisting in ascribing fixity to that which is fluent, which varies as we vary, being gross when we are gross,

¹ Tennyson's "Lucretius."

and becoming, as our capacities widen, more abstract and sublime. On one great point the mind of Epicurus was at peace. He neither sought nor expected, here or hereafter, any personal profit from his relation to the gods. And it is assuredly a fact that loftiness and serenity of thought may be promoted by conceptions which involve no idea of profit of this kind. "Did I not believe," said a great man to me once, "that an Intelligence is at the heart of things, my life on earth would be intolerable." The utterer of these words is not, in my opinion, rendered less noble but more noble by the fact that it was the need of ethical harmony here, and not the thought of personal profit hereafter, that prompted his observation.

There are persons, not belonging to the highest intellectual zone, nor yet to the lowest, to whom perfect clearness of exposition suggests want of depth. They find comfort and edification in an abstract and learned phraseology. To some such people Epicurus, who spared no pains to rid his style of every trace of haze and turbidity, appeared, on this very account, superficial. He had, however, a disciple who thought it no unworthy occupation to spend his days and nights in the effort to reach the clearness of his master, and to whom the Greek philosopher is mainly indebted for the extension and perpetuation of his fame. A century and a half after the death of Epicurus, Lucretius¹ wrote his great poem, "On the Nature of Things," in which he, a Roman, developed with extraordinary ardor the philosophy of his Greek predecessor. He wishes to win over his friend Memnius to the school of Epicurus; and, although he has no rewards in a future life to offer, although his object appears to be a purely negative one, he addresses his friend with the heat of an apostle. His object, like that of his great forerunner, is the destruction of superstition; and considering that men

¹ Born 99 B. C.

trembled before every natural event as a direct monition from the gods, and that everlasting torture was also in prospect, the freedom aimed at by Lucretius might perhaps be deemed a positive good. "This terror," he says, "and darkness of mind must be dispelled, not by the rays of the sun and glittering shafts of day, but by the aspect and the law of Nature." He refutes the notion that any thing can come out of nothing, or that that which is once begotten can be recalled to nothing. The first beginnings, the atoms, are indestructible, and into them all things can be resolved at last. Bodies are partly atoms, and partly combinations of atoms; but the atoms nothing can quench. They are strong in solid singleness, and by their denser combination all things can be closely packed and exhibit enduring strength. He denies that matter is infinitely divisible. We come at length to the atoms, without which, as an imperishable substratum, all order in the generation and development of things would be destroyed.

The mechanical shock of the atoms being in his view the all-sufficient cause of things, he combats the notion that the constitution of Nature has been in any way determined by intelligent design. The interaction of the atoms throughout infinite time rendered all manner of combinations possible. Of these the fit ones persisted, while the unfit ones disappeared. Not after sage deliberation did the atoms station themselves in their right places, nor did they bargain what motions they should assume. From all eternity they have been driven together, and, after trying motions and unions of every kind, they fell at length into the arrangements out of which this system of things has been formed. "If you will apprehend and keep in mind these things, Nature, free at once, and rid of her haughty lords, is seen to do all things spontaneously of herself, without the meddling of the gods."¹

¹ Monro's translation. In his criticism of this work, *Contemporary*

To meet the objection that his atoms cannot be seen, Lucretius describes a violent storm, and shows that the invisible particles of air act in the same way as the visible particles of water. We perceive, moreover, the different smells of things, yet never see them coming to our nostrils. Again, clothes hung up on a shore which waves break upon become moist, and then get dry if spread out in the sun, though no eye can see either the approach or the escape of the water-particles. A ring, worn long on the finger, becomes thinner; a water-drop hollows out a stone; the ploughshare is rubbed away in the field; the street-pavement is worn by the feet; but the particles that disappear at any moment we cannot see. Nature acts through invisible particles. That Lucretius had a strong scientific imagination the foregoing references prove. A fine illustration of his power in this respect is his explanation of the apparent rest of bodies whose atoms are in motion. He employs the image of a flock of sheep with skipping lambs, which, seen from a distance, presents simply a white patch upon the green hill, the jumping of the individual lambs being quite invisible.

His vaguely-grand conception of the atoms falling eternally through space suggested the nebular hypothesis to Kant, its first propounder. Far beyond the limits of our visible world are to be found atoms innumerable, which have never been united to form bodies, or which, if once united, have been again dispersed, falling silently through immeasurable intervals of time and space. As everywhere throughout the All the same conditions are repeated, so must the phenomena be repeated also. Above us, below us, beside us, therefore, are worlds without end; and this, when considered, must dissipate every thought of a deflec-

Review, 1837, Dr. Hayman does not appear to be aware of the really sound and subtle observations on which the reasoning of Lucretius, though erroneous, sometimes rests.

tion of the universe by the gods. The worlds come and go, attracting new atoms out of limitless space, or dispersing their own particles. The reputed death of Lucretius, which forms the basis of Mr. Tennyson's noble poem, is in strict accordance with his philosophy, which was severe and pure.

During the centuries lying between the first of these three philosophers and the last, the human intellect was active in other fields than theirs. The sophists had run through their career. At Athens had appeared Socrates, Plato, and Aristotle, who ruined the sophists, and whose yoke remains to some extent unbroken to the present hour. Within this period also the School of Alexandria was founded, Euclid wrote his "Elements," and made some advance in optics. Archimedes had propounded the theory of the lever and the principles of hydrostatics. Pythagoras had made his experiments on the harmonic intervals, while astronomy was immensely enriched by the discoveries of Hipparchus, who was followed by the historically more celebrated Ptolemy. Anatomy had been made the basis of scientific medicine; and it is said by Draper¹ that vivisection then began. In fact, the science of ancient Greece had already cleared the world of the fantastic images of divinities operating capriciously through natural phenomena. It had shaken itself free from that fruitless scrutiny "by the internal light of the mind alone," which had vainly sought to transcend experience and reach a knowledge of ultimate causes. Instead of accidental observation, it had introduced observation with a purpose; instruments were employed to aid the senses; and scientific method was rendered in a great measure complete by the union of Induction and Experiment.

What, then, stopped its victorious advance? Why was the scientific intellect compelled, like an exhausted soil, to

¹ "History of the Intellectual Development of Europe," p. 295.

lie fallow for nearly two millenniums before it could re-gather the elements necessary to its fertility and strength? Bacon has already let us know one cause; Whewell ascribes this stationary period to four causes—obscurity of thought, servility, intolerance of disposition, enthusiasm of temper—and he gives striking examples of each.¹ But these characteristics must have had their antecedents in the circumstances of the time. Rome and the other cities of the empire had fallen into moral putrefaction. Christianity had appeared, offering the gospel to the poor, and, by moderation if not asceticism of life, practically protesting against the profligacy of the age. The sufferings of the early Christians, and the extraordinary exaltation of mind which enabled them to triumph over the diabolical tortures to which they were subjected,² must have left traces not easily effaced. They scorned the earth, in view of that “building of God, that house not made with hands, eternal in the heavens.” The Scriptures which ministered to their spiritual needs were also the measure of their science. When, for example, the celebrated question of antipodes came to be discussed, the Bible was with many the ultimate court of appeal. Augustin, who flourished A. D. 400, would not deny the rotundity of the earth; but he would deny the possible existence of inhabitants at the other side, “because no such race is recorded in Scripture among the descendants of Adam.” Archbishop Boniface was shocked at the assumption of a “world of human beings out of the reach of the means of salvation.” Thus reined in, Science was not likely to make much progress. Later on, the political and theological strife between the Church and civil governments, so powerfully depicted by Draper, must have done much to stifle investigation.

Whewell makes many wise and brave remarks regard-

¹ “History of the Inductive Sciences,” vol. i.

² Depicted with terrible vividness in Renan’s “Antichrist.”

ing the spirit of the middle ages. It was a menial spirit. The seekers after natural knowledge had forsaken that fountain of living waters, the direct appeal to Nature by observation and experiment, and had given themselves up to the remanipulation of the notions of their predecessors. It was a time when thought had become abject, and when the acceptance of mere authority led, as it always does in science, to intellectual death. Natural events, instead of being traced to physical, were referred to moral causes; while an exercise of the fantasy, almost as degrading as the spiritualism of the present day, took the place of scientific speculation. Then came the mysticism of the middle ages, magic, alchemy, the Neoplatonic philosophy, with its visionary though sublime abstractions, which caused men to look with shame upon their own bodies as hindrances to the absorption of the creature in the blessedness of the Creator. Finally came the scholastic philosophy, a fusion, according to Lange, of the least-mature notions of Aristotle with the Christianity of the West. Intellectual immobility was the result. As a traveler without a compass in a fog may wander long, imagining he is making way, and find himself after hours of toil at his starting-point, so the schoolmen, having "tied and untied the same knots and formed and dissipated the same clouds," found themselves at the end of centuries in their old position.

With regard to the influence wielded by Aristotle in the middle ages, and which, though to a less extent, he still wields, I would ask permission to make one remark. When the human mind has achieved greatness and given evidence of extraordinary power in any domain, there is a tendency to credit it with similar power in all other domains. Thus theologians have found comfort and assurance in the thought that Newton dealt with the question of revelation, forgetful of the fact that the very devotion of his powers, through all the best years of his life,

to a totally different class of ideas, not to speak of any natural disqualification, tended to render him less instead of more competent to deal with theological and historic questions. Goethe, starting from his established greatness as a poet, and indeed from his positive discoveries in natural history, produced a profound impression among the painters of Germany when he published his "Farbenlehre," in which he endeavored to overthrow Newton's theory of colors. This theory he deemed so obviously absurd that he considered its author a charlatan, and attacked him with a corresponding vehemence of language. In the domain of natural history Goethe had made really considerable discoveries; and we have high authority for assuming that, had he devoted himself wholly to that side of science, he might have reached in it an eminence comparable with that which he attained as a poet. In sharpness of observation, in the detection of analogies, however apparently remote, in the classification and organization of facts according to the analogies discerned, Goethe possessed extraordinary powers. These elements of scientific inquiry fall in with the discipline of the poet. But, on the other hand, a mind thus richly endowed in the direction of natural history may be almost shorn of endowment as regards the more strictly-called physical and mechanical sciences. Goethe was in this condition. He could not formulate distinct mechanical conceptions; he could not see the force of mechanical reasoning; and in regions where such reasoning reigns supreme he became a mere *ignis fatuus* to those who followed him.

I have sometimes permitted myself to compare Aristotle with Goethe, to credit the Stagirite with an almost superhuman power of amassing and systematizing facts, but to consider him fatally defective on that side of the mind in respect to which incompleteness has been just ascribed to Goethe. Whewell refers the errors of Aristotle, not to

a neglect of facts, but to a "neglect of the idea appropriate to the facts; the idea of mechanical cause, which is force, and the substitution of vague or inapplicable notions, involving only relations of space or emotions of wonder." This is doubtless true; but the word "neglect" implies mere intellectual misdirection, whereas in Aristotle, as in Goethe, it was not, I believe, misdirection, but sheer natural incapacity which lay at the root of his mistakes. As a physicist, Aristotle displayed what we should consider some of the worst attributes of a modern physical investigator—indistinctness of ideas, confusion of mind, and a confident use of language, which led to the delusive notion that he had really mastered his subject, while he had as yet failed to grasp even the elements of it. He put words in the place of things, subject in the place of object. He preached induction without practising it, inverting the true order of inquiry by passing from the general to the particular instead of from the particular to the general. He made of the universe a closed sphere, in the centre of which he fixed the earth, proving from general principles, to his own satisfaction and to that of the world for near two thousand years, that no other universe was possible. His notions of motion were entirely unphysical. It was natural or unnatural, better or worse, calm or violent—no real mechanical conception regarding it lying at the bottom of his mind. He affirmed that a vacuum could not exist, and proved that if it did exist motion in it would be impossible. He determined *a priori* how many species of animals must exist, and shows on general principles why animals must have such and such parts. When an eminent contemporary philosopher, who is far removed from errors of this kind, remembers these abuses of the *a priori* method, he will be able to make allowance for the jealousy of physicists as to the acceptance of so-called *a priori* truths. Aristotle's errors of detail, as shown by Eucken and Lange, were grave

and numerous. He affirmed that only in man we had the beating of the heart, that the left side of the body was colder than the right, that men have more teeth than women, and that there is an empty space at the back of every man's head.

There is one essential quality in physical conceptions which is entirely wanting in those of Aristotle and his followers. I wish it could be expressed by a word untainted by its associations; it signifies a capability of being placed as a coherent picture before the mind. The Germans express the act of picturing by the word *vorstellen*, and the picture they call a *Vorstellung*. We have no word in English which comes nearer to our requirements than *imagination*, and, taken with its proper limitations, the word answers very well; but, as just intimated, it is tainted by its associations, and therefore objectionable to some minds. Compare, with reference to this capacity of mental presentation, the case of the Aristotelian who refers the ascent of water in a pump to Nature's abhorrence of a vacuum, with that of Pascal when he proposed to solve the question of atmospheric pressure by the ascent of the Puy de Dôme. In the one case the terms of the explanation refuse to fall into place as a physical image; in the other the image is distinct, the fall and rise of the barometer being clearly figured as the balancing of two varying and opposing pressures.

During the drought of the middle ages in Christendom, the Arabian intellect, as forcibly shown by Draper, was active. With the intrusion of the Moors into Spain, he says, order, learning, and refinement, took the place of their opposites. When smitten with disease, the Christian peasant resorted to a shrine, the Moorish one to an instructed physician. The Arabs encouraged translations from the Greek philosophers, but not from the Greek poets. They turned in disgust "from the lewdness of our classical

mythology, and denounced as an unpardonable blasphemy all connection between the impure Olympian Jove and the Most High God." Draper traces still further than Whewell the Arab elements in our scientific terms, and points out that the under-garment of ladies retains to this hour its Arab name. He gives examples of what Arabian men of science accomplished, dwelling particularly on Alhazan, who was the first to correct the Platonic notion that rays of light are emitted by the eye. He discovered atmospheric refraction, and points out that we see the sun and the moon after they have set. He explains the enlargement of the sun and moon, and the shortening of the vertical diameters of both these bodies, when near the horizon. He is aware that the atmosphere decreases in density with increase of elevation, and actually fixes its height at fifty-eight and a half miles. In the "Book of the Balance Wisdom," he sets forth the connection between the weight of the atmosphere and its increasing density. He shows that a body will weigh differently in a rare and dense atmosphere; he considers the force with which plunged bodies rise through heavier media. He understands the doctrine of the centre of gravity, and applies it to the investigation of balances and steelyards. He recognizes gravity as a force, though he falls into the error of making it diminish simply as the distance increased, and of making it purely terrestrial. He knows the relation between the velocities, spaces, and times of falling bodies, and has distinct ideas of capillary attraction. He improved the hydrometer. The determination of the densities of bodies as given by Alhazan approaches very closely to our own. "I join," says Draper, "in the pious prayer of Alhazan, 'that in the day of judgment the All-Merciful will take pity on the soul of Abur-Raihân, because he was the first of the race of men to construct a table of specific gravities.'" If all this be historic truth (and I have entire confidence in Dr. Draper), well may

he "deplore the systematic manner in which the literature of Europe has contrived to put out of sight our scientific obligations to the Mohammedans."¹

The strain upon the mind during the stationary period toward ultra-terrestrial things, to the neglect of problems close at hand, was sure to provoke reaction. But the reaction was gradual; for the ground was dangerous, a power being at hand competent to crush the critic who went too far. To elude this power and still allow opportunity for the expression of opinion, the doctrine of "twofold truth" was invented, according to which an opinion might be held "theologically" and the opposite opinion "philosophically."¹ Thus in the thirteenth century the creation of the world in six days, and the unchangeableness of the individual soul, which had been so distinctly affirmed by St. Thomas Aquinas, were both denied philosophically, but admitted to be true as articles of the Catholic faith. When Protagoras uttered the maxim which brought upon him so much vituperation, that "opposite assertions are equally true," he simply meant that human beings differed so much from each other that what was subjectively true to the one might be subjectively untrue to the other. The great sophist never meant to play fast and loose with the truth by saying that one of two opposite assertions, made by the same individual, could possibly escape being a lie. It was not "sophistry," but the dread of theologic vengeance, that generated this double dealing with conviction; and it is astonishing to notice what lengths were possible to men who were adroit in the use of artifices of this kind.

Toward the close of the stationary period a word-weariness, if I may so express it, took more and more possession of men's minds. Christendom had become sick of the school philosophy and its verbal wastes, which led to no

¹ "Intellectual Development of Europe," p. 359.

² Lange, second edition, pp. 181, 182.

issue, but left the intellect in everlasting haze. Here and there he heard the voice of one impatiently crying in the wilderness, "Not unto Aristotle, not unto subtile hypothesis, not unto Church, Bible, or blind tradition, must we turn for a knowledge of the universe, but to the direct investigation of Nature by observation and experiment." In 1543 the epoch-making work of Copernicus on the paths of the heavenly bodies appeared. The total crash of Aristotle's closed universe with the earth at its centre followed as a consequence, and "the earth moves!" became a kind of watchword among intellectual freemen. Copernicus was canon of the Church of Frauenburg, in the diocese of Ermeland. For three-and-thirty years he had withdrawn himself from the world and devoted himself to the consolidation of his great scheme of the solar system. He made its blocks eternal; and even to those who feared it and desired its overthrow it was so obviously strong that they refrained for a time from meddling with it. In the last year of the life of Copernicus his book appeared: it is said that the old man received a copy of it a few days before his death, and then departed in peace.

The Italian philosopher, Giordano Bruno, was one of the earliest converts to the new astronomy. Taking Lucretius as his exemplar, he revived the notion of the infinity of worlds; and, combining with it the doctrine of Copernicus, reached the sublime generalization that the fixed stars are suns, scattered numberless through space and accompanied by satellites, which bear the same relation to them that our earth does to our sun, or our moon to our earth. This was an expansion of transcendent import; but Bruno came closer than this to our present line of thought. Struck with the problem of the generation and maintenance of organisms, and duly pondering it, he came to the conclusion that Nature in her productions does not imitate the technic of man. Her process is one of unraveling and un-

folding. The infinity of forms under which matter appears was not imposed upon it by an external artificer; by its own intrinsic force and virtue it brings these forms forth. Matter is not the mere naked, empty *capacity* which philosophers have pictured her to be, but the universal mother who brings forth all things as the fruit of her own womb.

This outspoken man was originally a Dominican monk. He was accused of heresy and had to fly, seeking refuge in Geneva, Paris, England, and Germany. In 1592 he fell into the hands of the Inquisition at Venice. He was imprisoned for many years, tried, degraded, excommunicated, and handed over to the civil power, with the request that he should be treated gently and "without the shedding of blood." This meant that he was to be burnt; and burnt accordingly he was, on the 16th of February, 1600. To escape a similar fate, Galileo, thirty-three years afterward, abjured, upon his knees, and with his hands upon the holy gospels, the heliocentric doctrine which he knew to be true. After Galileo came Kepler, who from his German home defied the power beyond the Alps. He traced out from preëxisting observations the laws of planetary motion. Materials were thus prepared for Newton, who bound those empirical laws together by the principle of gravitation.

In the seventeenth century Bacon and Descartes, the restorers of philosophy, appeared in succession. Differently educated and endowed, their philosophic tendencies were different. Bacon held fast to Induction, believing firmly in the existence of an external world, and making collected experiences the basis of all knowledge. The mathematical studies of Descartes gave him a bias toward Deduction; and his fundamental principle was much the same as that of Protagoras, who made the individual man the measure of all things. "I think, therefore I am," said Descartes. Only his own identity was sure to him; and the development of this system would have led to an idealism in which

the outer world would be resolved into a mere phenomenon of consciousness. Gassendi, one of Descartes's contemporaries, of whom we shall hear more presently, quickly pointed out that the fact of personal existence would be proved as well by reference to any other act as to the act of thinking. I eat, therefore I am ; or, I love, therefore I am, would be quite as conclusive. Lichtenberg showed that the very thing to be proved was inevitably postulated in the first two words, "I think ;" and that no inference from the postulate could by any possibility be stronger than the postulate itself.

But Descartes deviated strangely from the idealism implied in his fundamental principle. He was the first to reduce, in a manner eminently capable of bearing the test of mental presentation, vital phenomena to purely mechanical principles. Through fear or love, Descartes was a good churchman ; he accordingly rejects the notion of an atom, because it was absurd to suppose that God, if he so pleased, could not divide an atom ; he puts in the place of the atoms small round particles and light splinters, out of which he builds the organism. He sketches with marvelous physical insight a machine, with water for its motive power, which shall illustrate vital actions. He has made clear to his mind that such a machine would be competent to carry on the processes of digestion, nutrition, growth, respiration, and the beating of the heart. It would be competent to accept impressions from the external sense, to store them up in imagination and memory, to go through the internal movements of the appetites and passions, the external movement of limbs. He deduces these functions of his machine from the mere arrangement of its organs, as the movement of a clock or other automaton is deduced from its weights and wheels. "As far as these functions are concerned," he says, "it is not necessary to conceive any other vegetative or sensitive soul, nor any other principle of

motion or of life, than the blood and the spirits agitated by the fire which burns continually in the heart, and which is in no wise different from the fires which exist in inanimate bodies." Had Descartes been acquainted with the steam-engine, he would have taken it, instead of a fall of water, as his motive power, and shown the perfect analogy which exists between the oxidation of the food in the body and that of the coal in the furnace. He would assuredly have anticipated Mayer in calling the blood which the heart diffuses "the oil of the lamp of life;" deducing all animal motions from the combustion of this oil, as the motions of a steam-engine are deduced from the combustion of its coal. As the matter stands, however, and considering the circumstances of the time, the boldness, clearness, and precision with which he grasped the problem of vital dynamics constitute a marvelous illustration of intellectual power.¹

During the middle ages the doctrine of atoms had to all appearance vanished from discussion. In all probability it held its ground among sober-minded and thoughtful men, though neither the Church nor the world was prepared to hear of it with tolerance. Once, in the year 1348, it received distinct expression. But retractation by compulsion immediately followed, and, thus discouraged, it slumbered till the seventeenth century, when it was revived by a contemporary and friend of Hobbes of Malmesbury, the orthodox Catholic provost of Digne, Gassendi. But, before stating his relation to the Epicurean doctrine, it will be well to say a few words on the effect, as regards science, of the general introduction of monotheism among European nations.

"Were men," says Hume, "led into the apprehension of invisible intelligent power by contemplation of the

¹ See Huxley's admirable essay on Descartes, "Lay Sermons," pp. 364 365.

works of Nature, they could never possibly entertain any conception but of one single being, who bestowed existence and order on this vast machine, and adjusted all its parts to one regular system." Referring to the condition of the heathen, who sees a god behind every natural event, thus peopling the world with thousands of beings whose caprices are incalculable, Lange shows the impossibility of any compromise between such notions and those of science, which proceeds on the assumption of never-changing law and causality. "But," he continues, with characteristic penetration, "when the great thought of one God, acting as a unit upon the universe, has been seized, the connection of things in accordance with the law of cause and effect is not only thinkable, but it is a necessary consequence of the assumption. For when I see ten thousand wheels in motion, and know, or believe, that they are all driven by one, then I know that I have before me a mechanism the action of every part of which is determined by the plan of the whole. So much being assumed, it follows that I may investigate the structure of that machine, and the various motions of its parts. For the time being, therefore, this conception renders scientific action free." In other words, were a capricious God at the circumference of every wheel and at the end of every lever, the action of the machine would be incalculable by the methods of science. But the action of all its parts being rigidly determined by their connections and relations, and these being brought into play by a single self-acting driving-wheel, then, though this last prime mover may elude me, I am still able to comprehend the machinery which it sets in motion. We have here a conception of the relation of Nature to its Author which seems perfectly acceptable to some minds, but perfectly intolerable to others. Newton and Boyle lived and worked happily under the influence of this conception; Goethe rejected it

with vehemence, and the same repugnance to accepting it is manifest in Carlyle.¹

The analytic and synthetic tendencies of the human mind exhibit themselves throughout history, great writers ranging themselves sometimes on the one side, sometimes on the other. Men of warm feelings and minds open to the elevating impressions produced by Nature as a whole, whose satisfaction, therefore, is rather ethical than logical, lean to the synthetic side; while the analytic harmonizes best with the more precise and more mechanical bias which seeks the satisfaction of the understanding. Some form of pantheism was usually adopted by the one, while a detached Creator, working more or less after the manner of men, was often assumed by the other. Gassendi is hardly to be ranked with either. Having formally acknowledged God as the great first cause, he immediately dropped the idea, applied the known laws of mechanics to the atoms, deducing thence all vital phenomena. He defended Epicurus, and dwelt upon his purity, both of doctrine and of life. True he was a heathen, but so was Aristotle. He assailed superstition and religion, and rightly, because he did not know the true religion. He thought that the gods neither rewarded nor punished, and adored them purely in consequence of their completeness; here we see, says Gassendi, the reverence of the child instead of the fear of the slave. The errors of Epicurus shall be corrected, the body of his truth retained; and then Gassendi proceeds, as any heathen might do, to build up the world, and all that therein is, of atoms and molecules. God, who created earth and water, plants and animals, produced in the first

¹ Boyle's model of the universe was the Strasbourg clock with an outside artificer. Goethe, on the other hand, sang—

“ Ihm ziemt's die Welt im Innern zu bewegen,
Natur in sich, sich in Natur zu hegen.”

See also Carlyle, “Past and Present,” chapter v.

place a definite number of atoms, which constituted the seed of all things. Then began that series of combinations and decompositions which goes on at present, and which will continue in future. The principle of every change resides in matter. In artificial productions the moving principle is different from the material worked upon; but in Nature the agent works within, being the most active and mobile part of the material itself. Thus, this bold ecclesiastic, without incurring the censure of the Church or the world, contrives to outstrip Mr. Darwin. The same cast of mind which caused him to detach the Creator from his universe led him also to detach the soul from the body, though to the body he ascribes an influence so large as to render the soul almost unnecessary. The aberrations of reason were in his view an affair of the material brain. Mental disease is brain-disease; but then the immortal reason sits apart, and cannot be touched by the disease. The errors of madness are errors of the instrument, not of the performer.

It may be more than a mere result of education, connecting itself probably with the deeper mental structure of the two men, that the idea of Gassendi above enunciated is substantially the same as that expressed by Prof. Clerk Maxwell at the close of the very able lecture delivered by him at Bradford last year. According to both philosophers, the atoms, if I understand aright, are the *prepared materials* which, formed by the skill of the highest, produce by their subsequent interaction all the phenomena of the material world. There seems to be this difference, however, between Gassendi and Maxwell: the one *postulates*, the other *infers* his first cause. In his "manufactured articles," as he calls the atoms, Prof. Maxwell finds the basis of an induction which enables him to scale philosophic heights considered inaccessible by Kant, and to take the logical step from the atoms to their Maker.

Accepting here the leadership of Kant, I doubt the legitimacy of Maxwell's logic; but it is impossible not to feel the ethic glow with which his lecture concludes. There is, moreover, a very noble strain of eloquence in his description of the steadfastness of the atoms: "Natural causes, as we know, are at work, which tend to modify, if they do not at length destroy, all the arrangements and dimensions of the earth and the whole solar system. But though in the course of ages catastrophes have occurred and may yet occur in the heavens, though ancient systems may be dissolved and new systems evolved out of their ruins, the molecules out of which these systems are built—the foundation-stones of the material universe—remain unbroken and unworn."

The atomic doctrine, in whole or in part, was entertained by Bacon, Descartes, Hobbes, Locke, Newton, Boyle, and their successors, until the chemical law of multiple proportions enabled Dalton to confer upon it an entirely new significance. In our day there are secessions from the theory, but it still stands firm. Loschmidt, Stoney, and Sir William Thomson, have sought to determine the sizes of the atoms, or, rather, to fix the limits between which their sizes lie; while only last year the discourses of Williamson and Maxwell illustrate the present hold of the doctrine upon the foremost scientific minds. In fact, it may be doubted whether, wanting this fundamental conception, a theory of the material universe is capable of scientific statement.

Ninety years subsequent to Gassendi the doctrine of bodily instruments, as it may be called, assumed immense importance in the hands of Bishop Butler, who, in his famous "Analogy of Religion," developed, from his own point of view, and with consummate sagacity, a similar idea. The bishop still influences superior minds; and it

will repay us to dwell for a moment on his views. He draws the sharpest distinction between our real selves and our bodily instruments. He does not, as far as I remember, use the word soul, possibly because the term was so hackneyed in his day as it had been for many generations previously. But he speaks of "living powers," "perceiving" or "percipient powers," "moving agents," "ourselves," in the same sense as we should employ the term soul. He dwells upon the fact that limbs may be removed, and mortal diseases assail the body, the mind, almost up to the moment of death, remaining clear. He refers to sleep and to swoon, where the "living powers" are suspended, but not destroyed. He considers it quite as easy to conceive of existence out of our bodies as in them: that we may animate a succession of bodies, the dissolution of all of them having no more tendency to dissolve our real selves, or "deprive us of living faculties—the faculties of perception and action—than the dissolution of any foreign matter which we are capable of receiving impressions from, or making use of for the common occasions of life." This is the key of the bishop's position; "our organized bodies are no more a part of ourselves than any other matter around us." In proof of this he calls attention to the use of glasses, which "prepare objects" for the "percipient power" exactly as the eye does. The eye itself is no more percipient than the glass; is quite as much the instrument of the true self, and also as foreign to the true self, as the glass is. "And if we see with our eyes only in the same manner as we do with glasses, the like may justly be concluded from analogy of all our senses."

Lucretius, as you are aware, reached a precisely opposite conclusion; and it certainly would be interesting, if not profitable, to us all, to hear what he would or could urge in opposition to the reasoning of the bishop. As a

brief discussion of the point will enable us to see the bearings of an important question, I will here permit a disciple of Lucretius to try the strength of the bishop's position, and then allow the bishop to retaliate, with the view of rolling back, if he can, the difficulty upon Lucretius.

The argument might proceed in this fashion :

“Subjected to the test of mental presentation (*Vorstellung*), your views, most honored prelate, would present to many minds a great, if not an insuperable, difficulty. You speak of ‘living powers,’ ‘percipient or perceiving powers,’ and ‘ourselves;’ but can you form a mental picture of any one of these apart from the organism through which it is supposed to act? Test yourself honestly, and see whether you possess any faculty that would enable you to form such a conception. The true self has a local habitation in each of us; thus localized, must it not possess a form? If so, what form? Have you ever for a moment realized it? When a leg is amputated the body is divided into two parts; is the true self in both of them or in one? Thomas Aquinas might say in both; but not you, for you appeal to the consciousness associated with one of the two parts to prove that the other is foreign matter. Is consciousness, then, a necessary element of the true self? If so, what do you say to the case of the whole body being deprived of consciousness? If not, then on what grounds do you deny any portion of the true self to the severed limb? It seems very singular that, from the beginning to the end of your admirable book (and no one admires its sober strength more than I do), you never once mention the brain or nervous system. You begin at one end of the body, and show that its parts may be removed without prejudice to the perceiving power. What if you begin at the other end, and remove, instead of the leg, the brain? The

body, as before, is divided into two parts ; but both are now in the same predicament, and neither can be appealed to to prove that the other is foreign matter. Or, instead of going so far as to remove the brain itself, let a certain portion of its bony covering be removed, and let a rhythmic series of pressures and relaxations of pressure be applied to the soft substance. At every pressure 'the faculties of perception and of action' vanish ; at every relaxation of pressure they are restored. Where, during the intervals of pressure, is the perceiving power ? I once had the discharge of a large Leyden battery passed unexpectedly through me : I felt nothing, but was simply blotted out of conscious existence for a sensible interval. Where was my true self during that interval ? Men who have recovered from lightning-stroke have been much longer in the same state ; and, indeed, in cases of ordinary concussion of the brain, days may elapse during which no experience is registered in consciousness. Where is the man himself during the period of insensibility ? You may say that I beg the question when I assume the man to have been unconscious, that he was really conscious all the time, and has simply forgotten what had occurred to him. In reply to this, I can only say that no one need shrink from the worst tortures that superstition ever invented if only so felt and so remembered. I do not think your theory of instruments goes at all to the bottom of the matter. A telegraph-operator has his instruments, by means of which he converses with the world ; our bodies possess a nervous system, which plays a similar part between the perceiving power and external things. Cut the wires of the operator, break his battery, demagnetize his needle : by this means you certainly sever his connection with the world ; but, inasmuch as these are real instruments, their destruction does not touch the man who uses them. The operator survives, *and he knows that he sur-*

vives. What is it, I would ask, in the human system that answers to this conscious survival of the operator when the battery of the brain is so disturbed as to produce insensibility, or when it is destroyed altogether?

“Another consideration, which you may consider slight, presses upon me with some force. The brain may change from health to disease, and through such a change the most exemplary man may be converted into a debauchee or a murderer. My very noble and approved good master had, as you know, threatenings of lewdness introduced into his brain by his jealous wife’s philter; and, sooner than permit himself to run even the risk of yielding to these base promptings, he slew himself. How could the hand of Lucretius have been thus turned against himself if the real Lucretius remained as before? Can the brain or can it not act in this distempered way without the intervention of the immortal reason? If it can, then it is a prime mover which requires only healthy regulation to render it reasonably self-acting, and there is no apparent need of your immortal reason at all. If it cannot, then the immortal reason, by its mischievous activity in operating upon a broken instrument, must have the credit of committing every imaginable extravagance and crime. I think, if you will allow me to say so, that the gravest consequences are likely to flow from your estimate of the body. To regard the brain as you would a staff or an eyeglass—to shut your eyes to all its mystery, to the perfect correlation of its condition and our consciousness, to the fact that a slight excess or defect of blood in it produces the very swoon to which you refer, and that in relation to it our meat and drink and air and exercise have a perfectly transcendental value and significance—to forget all this, does, I think, open a way to innumerable errors in our habits of life, and may possibly in some cases initiate and foster that very disease, and consequent mental ruin,

which a wiser appreciation of this mysterious organ would have avoided."

I can imagine the bishop thoughtful after hearing this argument. He was not the man to allow anger to mingle with the consideration of a point of this kind. After due reflection, and having strengthened himself by that honest contemplation of the facts which was habitual with him, and which includes the desire to give even adverse facts their due weight, I can suppose the bishop to proceed thus: "You will remember that in the 'Analogy of Religion,' of which you have so kindly spoken, I did not profess to prove any thing absolutely, and that I over and over again acknowledged and insisted on the smallness of our knowledge, or rather the depth of our ignorance, as regards the whole system of the universe. My object was to show my deistical friends, who set forth so eloquently the beauty and beneficence of Nature and the Ruler thereof, while they had nothing but scorn for the so-called absurdities of the Christian scheme, that they were in no better condition than we were, and that, for every difficulty found upon our side, quite as great a difficulty was to be found upon theirs. I will now, with your permission, adopt a similar line of argument. You are a Lucretian, and from the combination and separation of insensate atoms deduce all terrestrial things, including organic forms and their phenomena. Let me tell you, in the first instance, how far I am prepared to go with you. I admit that you can build crystalline forms out of this play of molecular force; that the diamond, amethyst, and snow-star, are truly wonderful structures which are thus produced. I will go further and acknowledge that even a tree or flower might in this way be organized. Nay, if you can show me an animal without sensation, I will concede to you that it also might be put together by the suitable play of molecular force.

"Thus far our way is clear; but now comes my diffi-

culty. Your atoms are individually without sensation, much more are they without intelligence. May I ask you, then, to try your hand upon this problem? Take your dead hydrogen-atoms, your dead oxygen-atoms, your dead carbon-atoms, your dead nitrogen-atoms, your dead phosphorus-atoms, and all the other atoms, dead as grains of shot, of which the brain is formed. Imagine them separate and sensationless, observe them running together and forming all imaginable combinations. This, as a purely mechanical process, is *seeable* by the mind. But can you see, or dream, or in any way imagine, how out of that mechanical act, and from these individually dead atoms, sensation, thought, and emotion, are to arise? Are you likely to extract Homer out of the rattling of dice, or the Differential Calculus out of the clash of billiard-balls? I am not all bereft of this *Vorstellungskraft* of which you speak, nor am I, like so many of my brethren, a mere vacuum as regards scientific knowledge. I can follow a particle of musk until it reaches the olfactory nerve; I can follow the waves of sound until their tremors reach the water of the labyrinth and set the otoliths and Corti's fibres in motion; I can also visualize the waves of ether as they cross the eye and hit the retina. Nay, more, I am able to pursue to the central organ the motion thus imparted at the periphery, and to see in idea the very molecules of the brain thrown into tremors. My insight is not baffled by these physical processes. What baffles and bewilders me, is the notion that from those physical tremors things so utterly incongruous with them as sensation, thought, and emotion, can be derived. You may say, or think, that this issue of consciousness from the clash of atoms is not more incongruous than the flash of light from the union of oxygen and hydrogen. But I beg to say that it is. For such incongruity as the flash possesses is that which I now force upon your attention. The flash is an affair of consciousness, the objective counterpart of which

is a vibration. It is a flash only by your interpretation. *You* are the cause of the apparent incongruity, and *you* are the thing that puzzles me. I need not remind you that the great Leibnitz felt the difficulty which I feel, and that to get rid of this monstrous deduction of life from death he displaced your atoms by his monads, which were more or less perfect mirrors of the universe, and out of the summation and integration of which he supposed all the phenomena of life—sentient, intellectual, and emotional—to arise.

“Your difficulty, then, as I see you are ready to admit, is quite as great as mine. You cannot satisfy the human understanding in its demand for logical continuity between molecular processes and the phenomena of consciousness. This is a rock on which materialism must inevitably split whenever it pretends to be a complete philosophy of life. What is the moral, my Lucretian? You and I are not likely to indulge in ill-temper in the discussion of these great topics, where we see so much room for honest differences of opinion. But there are people of less wit or more bigotry (I say it with humility) on both sides, who are ever ready to mingle anger and vituperation with such discussions. There are, for example, writers of note and influence at the present day who are not ashamed to assume the ‘deep personal sin’ of a great logician to be the cause of his unbelief in a theologic dogma. And there are others who hold that we, who cherish our noble Bible, wrought as it has been into the constitution of our forefathers, and by inheritance into us, must necessarily be hypocritical and insincere. Let us disavow and discountenance such people, cherishing the unswerving faith that what is good and true in both our arguments will be preserved for the benefit of humanity, while all that is bad or false will disappear.”

I hold the bishop's reasoning to be unanswerable, and his liberality to be worthy of imitation.

It is worth remarking that in one respect the bishop was a product of his age. Long previous to his day the nature of the soul had been so favorite and general a topic of discussion, that, when the students of the University of Paris wished to know the leanings of a new professor, they at once requested him to lecture upon the soul. About the time of Bishop Butler the question was not only agitated, but extended. It was seen by the clear-witted men who entered this arena that many of their best arguments applied equally to brutes and men. The bishop's arguments were of this character. He saw it, admitted it, accepted the consequences, and boldly embraced the whole animal world in his scheme of immortality.

Bishop Butler accepted with unwavering trust the chronology of the Old Testament, describing it as "confirmed by the natural and civil history of the world, collected from common historians, from the state of the earth, and from the late inventions of arts and sciences." These words mark progress; and they must seem somewhat hoary to the bishop's successors of to-day.¹ It is hardly necessary to inform you that since his time the domain of the naturalist has been immensely extended—the whole science of geology, with its astounding revelations regarding the life of the ancient earth, having been created. The rigidity of old conceptions has been relaxed, the public mind being rendered gradually tolerant of the idea that not for six thousand, nor for sixty thousand, nor for six thousand thousand thousand, but for æons embracing untold millions of years, this earth has been the theatre of life and death. The riddle of the rocks has been read by the geologist and paleontologist, from the subcambrian depths to the deposits thickening over the sea-bottoms of to-day. And upon the leaves

¹ Only to some; for there are dignitaries who even now speak of the earth's rocky crust as so much building-material prepared for man at the Creation. Surely it is time that this loose language should cease.

of that stone book are, as you know, stamped the characters, plainer and surer than those formed by the ink of history, which carry the mind back into abysses of past time compared with which the periods which satisfied Bishop Butler cease to have a visual angle.

The lode of discovery once struck, those petrified forms in which life was at one time active increased to multitudes and demanded classification. They were grouped in genera, species, and varieties, according to the degree of similarity subsisting between them. Thus confusion was avoided, each object being found in the pigeon-hole appropriated to it and to its fellows of similar morphological or physiological character. The general fact soon became evident that none but the simplest forms of life lie lowest down, that, as we climb higher among the superimposed strata, more perfect forms appear. The change, however, from form to form, was not continuous, but by steps—some small, some great. “A section,” says Mr. Huxley, “a hundred feet thick will exhibit at different heights a dozen species of ammonite, none of which passes beyond its particular zone of limestone, of clay, into the zone below it, or into that above it.” In the presence of such facts it was not possible to avoid the question: Have these forms, showing, though in broken stages and with many irregularities, this unmistakable general advance, been subjected to no continuous law of growth or variation? Had our education been purely scientific, or had it been sufficiently detached from influences which, however ennobling in another domain, have always proved hinderances and delusions when introduced as factors into the domain of physics, the scientific mind never could have swerved from the search for a law of growth, or allowed itself to accept the anthropomorphism which regarded each successive stratum as a kind of mechanic’s bench for the manufacture of new species out of all relation to the old.

Biased, however, by their previous education, the great majority of naturalists invoked a special creative act to account for the appearance of each new group of organisms. Doubtless there were numbers who were clear-headed enough to see that this was no explanation at all; that in point of fact it was an attempt, by the introduction of a greater difficulty, to account for a less. But, having nothing to offer in the way of explanation, they for the most part held their peace. Still the thoughts of reflecting men naturally and necessarily simmered round the question. De Maillet, a contemporary of Newton, has been brought into notice by Prof. Huxley as one who "had a notion of the modifiability of living forms." In my frequent conversations with him, the late Sir Benjamin Brodie, a man of highly-philosophic mind, often drew my attention to the fact that, as early as 1794, Charles Darwin's grandfather was the pioneer of Charles Darwin.¹ In 1801, and in subsequent years, the celebrated Lamarck, who produced so profound an impression on the public mind through the vigorous exposition of his views by the author of the "Vestiges of Creation," endeavored to show the development of species out of changes of habit and external condition. In 1813 Dr. Wells, the founder of our present theory of dew, read before the Royal Society a paper in which, to use the words of Mr. Darwin, "he distinctly recognizes the principle of natural selection; and this is the first recognition that has been indicated." The thoroughness and skill with which Wells pursued his work, and the obvious independence of his character, rendered him long ago a favorite with me; and it gave me the liveliest pleasure to alight upon this additional testimony to his penetration. Prof. Grant, Mr. Patrick Matthew, Von Buch, the author of the "Vestiges," D'Hallo, and others,² by the enuncia-

¹ "Zoonomia," vol. i., pp. 500-510.

² In 1855 Mr. Herbert Spencer ("Principles of Psychology," second

tion of opinions more or less clear and correct, showed that the question had been fermenting long prior to the year 1858, when Mr. Darwin and Mr. Wallace simultaneously, but independently, placed their closely concurrent views upon the subject before the Linnæan Society.

These papers were followed in 1859 by the publication of the first edition of "The Origin of Species." All great things come slowly to the birth. Copernicus, as I informed you, pondered his great work for thirty-three years. Newton for nearly twenty years kept the idea of gravitation before his mind; for twenty years also he dwelt upon his discovery of fluxions, and doubtless would have continued to make it the object of his private thought had he not found that Leibnitz was upon his track. Darwin for two-and-twenty years pondered the problem of the origin of species, and doubtless he would have continued to do so had he not found Wallace upon his track.¹ A concentrated but full and powerful epitome of his labors was the consequence. The book was by no means an easy one; and probably not one in every score of those who then attacked it had read its pages through, or were competent to grasp their significance if they had. I do not say this merely to discredit them; for there were in those days some really eminent scientific men, entirely raised above the heat of popular prejudice, willing to accept any conclusion that science had to offer, provided it was duly backed by fact and argument, and who entirely mistook Mr. Darwin's views. In fact, the work needed an expounder; and it found one in Mr. Huxley. I know nothing more admirable in the way of scientific exposition than those early articles

edition, vol. i., p. 465) expressed "the belief that life under all its forms has arisen by an unbroken evolution, and through the instrumentality of what are called natural causes."

¹ The behavior of Mr. Wallace in relation to this subject has been dignified in the highest degree.

of his on the origin of species. He swept the curve of discussion through the really significant points of the subject, enriched his exposition with profound original remarks and reflections, often summing up in a single pithy sentence an argument which a less compact mind would have spread over pages. But there is an impression made by the book itself which no exposition of it, however luminous, can convey; and that is the impression of the vast amount of labor, both of observation and of thought, implied in its production. Let us glance at its principles.

It is conceded on all hands that what are called varieties are continually produced. The rule is probably without exception. No chick and no child is in all respects and particulars the counterpart of its brother and sister; and in such differences we have "variety" incipient. No naturalist could tell how far this variation could be carried; but the great mass of them held that never by any amount of internal or external change, nor by the mixture of both, could the offspring of the same progenitor so far deviate from each other as to constitute different species. The function of the experimental philosopher is to combine the conditions of Nature and to produce her results; and this was the method of Darwin.¹ He made himself acquainted with what could, without any manner of doubt, be done in the way of producing variation. He associated himself with pigeon-fanciers—bought, begged, kept, and observed every breed that he could obtain. Though derived from a common stock, the diversities of these pigeons were such that "a score of them might be chosen which, if shown to an ornithologist, and he were told that they were wild birds, would certainly be ranked by him as well-defined

¹ The first step only toward experimental demonstration has been taken. Experiments now begun might, a couple of centuries hence, furnish data of incalculable value, which ought to be supplied to the science of the future.

species." The simple principle which guides the pigeon-fancier, as it does the cattle-breeder, is the selection of some variety that strikes his fancy, and the propagation of this variety by inheritance. With his eye still directed to the particular appearance which he wishes to exaggerate, he selects it as it reappears in successive broods, and thus adds increment to increment until an astonishing amount of divergence from the parent type is effected. The breeder in this case does not produce the *elements* of the variation. He simply observes them, and by selection adds them together until the required result has been obtained. "No man," says Mr. Darwin, "would ever try to make a fantail till he saw a pigeon with a tail developed in some slight degree in an unusual manner, or a pouter until he saw a pigeon with a crop of unusual size." Thus Nature gives the hint, man acts upon it, and by the law of inheritance exaggerates the deviation.

Having thus satisfied himself by indubitable facts that the organization of an animal or of a plant (for precisely the same treatment applies to plants) is to some extent plastic, he passes from variation under domestication to variation under Nature. Hitherto we have dealt with the adding together of small changes by the conscious selection of man. Can Nature thus select? Mr. Darwin's answer is, "Assuredly she can." The number of living things produced is far in excess of the number that can be supported; hence at some period or other of their lives there must be a struggle for existence; and what is the infallible result? If one organism were a perfect copy of the other in regard to strength, skill, and agility, external conditions would decide. But this is not the case. Here we have the fact of variety offering itself to Nature, as in the former instance it offered itself to man; and those varieties which are least competent to cope with surrounding conditions will infallibly give way to those

that are most competent. To use a familiar proverb, the weakest comes to the wall. But the triumphant fraction again breeds to over-production, transmitting the qualities which secured its maintenance, but transmitting them in different degrees. The struggle for food again supervenes, and those to whom the favorable quality has been transmitted in excess will assuredly triumph. It is easy to see that we have here the addition of increments favorable to the individual still more rigorously carried out than in the case of domestication; for not only are unfavorable specimens not selected by Nature, but they are destroyed. This is what Mr. Darwin calls "Natural Selection," which "acts by the preservation and accumulation of small inherited modifications, each profitable to the preserved being." With this idea he interpenetrates and leavens the vast store of facts that he and others have collected. We cannot, without shutting our eyes through fear or prejudice, fail to see that Darwin is here dealing, not with imaginary, but with true causes; nor can we fail to discern what vast modifications may be produced by natural selection in periods sufficiently long. Each individual increment may resemble what mathematicians call a "differential" (a quantity indefinitely small); but definite and great changes may obviously be produced by the integration of these infinitesimal quantities through practically infinite time.

If Darwin, like Bruno, rejects the notion of creative power acting after human fashion, it certainly is not because he is unacquainted with the numberless exquisite adaptations on which this notion of a supernatural artificer has been founded. His book is a repository of the most startling facts of this description. Take the marvelous observation which he cites from Dr. Crüger, where a bucket with an aperture, serving as a spout, is formed in an orchid. Bees visit the flower: in eager search of material for their combs they push each other into the bucket, the

drenched ones escaping from their involuntary bath by the spout. Here they rub their backs against the viscid stigma of the flower and obtain glue; then against the pollen-masses, which are thus stuck to the back of the bee and carried away. "When the bee, so provided, flies to another flower, or to the same flower a second time, and is pushed by its comrades into the bucket, and then crawls out by the passage, the pollen-mass upon its back necessarily comes first into contact with the viscid stigma," which takes up the pollen; and this is how that orchid is fertilized. Or take this other case of the *catasetum*. "Bees visit these flowers in order to gnaw the labellum; in doing this they inevitably touch a long, tapering, sensitive projection. This, when touched, transmits a sensation of vibration to a certain membrane, which is instantly ruptured, setting free a spring, by which the pollen-mass is shot forth like an arrow in the right direction, and adheres by its viscid extremity to the back of the bee." In this way the fertilizing pollen is spread abroad.

It is the mind thus stored with the choicest materials of the teleologist that rejects teleology, seeking to refer these wonders to natural causes. They illustrate, according to him, the method of Nature, not the "technic" of a man-like artificer. The beauty of flowers is due to natural selection. Those that distinguish themselves by vividly contrasting colors from the surrounding green leaves are most readily seen, most frequently visited by insects, most often fertilized, and hence most favored by natural selection. Colored berries also readily attract the attention of birds and beasts, which feed upon them, spread their manured seeds abroad, thus giving trees and shrubs possessing such berries a greater chance in the struggle for existence.

With profound analytic and synthetic skill, Mr. Darwin investigates the cell-making instinct of the hive-bee. His method of dealing with it is representative. He falls back

from the more perfectly to the less perfectly developed instinct—from the hive-bee to the humble-bee, which uses its own cocoon as a comb, and to classes of bees of intermediate skill, endeavoring to show how the passage might be gradually made from the lowest to the highest. The saving of wax is the most important point in the economy of bees. Twelve to fifteen pounds of dry sugar are said to be needed for the secretion of a single pound of wax. The quantities of nectar necessary for the wax must therefore be vast; and every improvement of constructive instinct which results in the saving of wax is a direct profit to the insect's life. The time that would otherwise be devoted to the making of wax is now devoted to the gathering and storing of honey for winter food. He passes from the humble-bee with its rude cells, through the *Melipona* with its more artistic cells, to the hive-bee with its astonishing architecture. The bees place themselves at equal distances apart upon the wax, sweep and excavate equal spheres round the selected points. The spheres intersect, and the planes of intersection are built up with thin laminæ. Hexagonal cells are thus formed. This mode of treating such questions is, as I have said, representative. He habitually retires from the more perfect and complex to the less perfect and simple, and carries you with him through stages of *perfecting*, adds increment to increment of infinitesimal change, and in this way gradually breaks down your reluctance to admit that the exquisite climax of the whole could be a result of natural selection.

Mr. Darwin shirks no difficulty; and, saturated as the subject was with his own thought, he must have known better than his critics the weakness as well as the strength of his theory. This of course would be of little avail were his object a temporary dialectic victory instead of the establishment of a truth which he means to be everlasting. But he takes no pains to disguise the weakness he has discerned;

may, he takes every pains to bring it into the strongest light. His vast resources enable him to cope with objections started by himself and others, so as to leave the final impression upon the reader's mind that, if they be not completely answered, they certainly are not fatal. Their negative force being thus destroyed, you are free to be influenced by the vast positive mass of evidence he is able to bring before you. This largeness of knowledge and readiness of resource render Mr. Darwin the most terrible of antagonists. Accomplished naturalists have leveled heavy and sustained criticisms against him—not always with the view of fairly weighing his theory, but with the express intention of exposing its weak points only. This does not irritate him. He treats every objection with a soberness and thoroughness which even Bishop Butler might be proud to imitate, surrounding each fact with its appropriate detail, placing it in its proper relations, and usually giving it a significance which, as long as it was kept isolated, failed to appear. This is done without a trace of ill temper. He moves over the subject with the passionless strength of a glacier; and the grinding of the rocks is not always without a counterpart in the logical pulverization of the objector.

But though in handling this mighty theme all passion has been stilled, there is an emotion of the intellect incident to the discernment of new truth which often colors and warms the pages of Mr. Darwin. His success has been great; and this implies not only the solidity of his work, but the preparedness of the public mind for such a revelation. On this head a remark of Agassiz impressed me more than any thing else. Sprung from a race of theologians, this celebrated man combated to the last the theory of natural selection. One of the many times I had the pleasure of meeting him in the United States was at Mr. Winthrop's beautiful residence at Brookline, near Boston. Ris-

ing from luncheon, we all halted as if by a common impulse in front of a window, and continued there a discussion which had been started at table. The maple was in its autumn glory; and the exquisite beauty of the scene outside seemed, in my case, to interpenetrate without disturbance the intellectual action. Earnestly, almost sadly, Agassiz turned, and said to the gentlemen standing round, "I confess I was not prepared to see this theory received as it has been by the best intellects of our time. Its success is greater than I could have thought possible."⁴

In our day grand generalizations have been reached. The theory of the origin of species is but one of them. Another, of still wider grasp and more radical significance, is the doctrine of the Conservation of Energy, the ultimate philosophical issues of which are as yet but dimly seen—that doctrine which "binds Nature fast in fate" to an extent not hitherto recognized, exacting from every antecedent its equivalent consequent, from every consequent its equivalent antecedent, and bringing vital as well as physical phenomena under the dominion of that law of causal connection which, so far as the human understanding has yet pierced, asserts itself everywhere in Nature. Long in advance of all definite experiment upon the subject, the constancy and indestructibility of matter had been affirmed; and all subsequent experience justified the affirmation. Later researches extended the attribute of indestructibility to force. This idea, applied in the first instance to inorganic, rapidly embraced organic Nature. The vegetable world, though drawing almost all its nutriment from invisible sources, was proved incompetent to generate anew either matter or force. Its matter is for the most part transmuted gas; its force transformed solar force. The animal world was proved to be equally uncreative, all its motive energies being referred to the combustion of its food. The activity of each animal as a whole was proved to be

the transferred activity of its molecules. The muscles were shown to be stores of mechanical force, potential until unlocked by the nerves, and then resulting in muscular contractions. The speed at which messages fly to and fro along the nerves was determined, and found to be, not, as had been previously supposed, equal to that of light or electricity, but less than the speed of a flying eagle.

This was the work of the physicist: then came the conquests of the comparative anatomist and physiologist, revealing the structure of every animal, and the function of every organ in the whole biological series, from the lowest zoophyte up to man. The nervous system had been made the object of profound and continued study, the wonderful and, at bottom, entirely mysterious, controlling power which it exercises over the whole organism, physical and mental, being recognized more and more. Thought could not be kept back from a subject so profoundly suggestive. Besides the physical life dealt with by Mr. Darwin, there is a psychical life presenting similar gradations, and asking equally for a solution. How are the different grades and orders of mind to be accounted for? What is the principle of growth of that mysterious power which on our planet culminates in reason? These are questions which, though not thrusting themselves so forcibly upon the attention of the general public, had not only occupied many reflecting minds, but had been formerly breached by one of them before "The Origin of Species" appeared.

With the mass of materials furnished by the physicist and physiologist in his hands, Mr. Herbert Spencer, twenty years ago, sought to graft upon this basis a system of psychology; and two years ago a second and greatly amplified edition of his work appeared. Those who have occupied themselves with the beautiful experiments of Plateau will remember that, when two spherules of olive-oil, suspended in a mixture of alcohol-

and-water of the same density as the oil, are brought together, they do not immediately unite. Something like a pellicle appears to be formed around the drops, the rupture of which is immediately followed by the coalescence of the globules into one. There are organisms whose vital actions are almost as purely physical as that of these drops of oil. They come into contact and fuse themselves thus together. From such organisms to others a shade higher, and from these to others a shade higher still, and on through an ever-ascending series, Mr. Spencer conducts his argument. There are two obvious factors to be here taken into account—the creature and the medium in which it lives, or, as it is often expressed, the organism and its environment. Mr. Spencer's fundamental principle is that between these two factors there is incessant interaction. The organism is played upon by the environment, and is modified to meet the requirements of the environment. Life he defines to be “a continuous adjustment of internal relations to external relations.”

In the lowest organisms we have a kind of tactual sense diffused over the entire body; then, through impressions from without and their corresponding adjustments, special portions of the surface become more responsive to stimuli than others. The senses are nascent, the basis of all of them being that simple tactual sense which the sage Democritus recognized twenty-three hundred years ago as their common progenitor. The action of light, in the first instance, appears to be a mere disturbance of the chemical processes in the animal organism, similar to that which occurs in the leaves of plants. By degrees the action becomes localized in a few pigment-cells, more sensitive to light than the surrounding tissue. The eye is here incipient. At first it is merely capable of revealing differences of light and shade produced by bodies close at hand. Followed as the interception of the light

is in almost all cases by the contact of the closely adjacent opaque body, sight in this condition becomes a kind of "anticipatory touch." The adjustment continues; a slight bulging out of the epidermis over the pigment-granules supervenes. A lens is incipient, and, through the operation of infinite adjustments, at length reaches the perfection that it displays in the hawk and eagle. So of the other senses; they are special differentiations of a tissue which was originally vaguely sensitive all over.

With the development of the senses the adjustments between the organism and its environment gradually extend in *space*, a multiplication of experiences and a corresponding modification of conduct being the result. The adjustments also extend in *time*, covering continually greater intervals. Along with this extension in space and time the adjustments also increase in specialty and complexity, passing through the various grades of brute-life, and prolonging themselves into the domain of reason. Very striking are Mr. Spencer's remarks regarding the influence of the sense of touch upon the development of intelligence. This is, so to say, the mother-tongue of all the senses, into which they must be translated to be of service to the organism. Hence its importance. The parrot is the most intelligent of birds, and its tactual power is also greatest. From this sense it gets knowledge unattainable by birds which cannot employ their feet as hands. The elephant is the most sagacious of quadrupeds—its tactual range and skill, and the consequent multiplication of experiences, which it owes to its wonderfully adaptable trunk, being the basis of its sagacity. Feline animals, for a similar cause, are more sagacious than hoofed animals—atonement being to some extent made, in the case of the horse, by the possession of sensitive prehensile lips. In the *Primates* the evolution of intellect and the evolution of tactual appendages

go hand-in-hand. In the most intelligent anthropoid apes we find the tactual range and delicacy greatly augmented, new avenues of knowledge being thus open to the animal. Man crowns the edifice here, not only in virtue of his own manipulatory power, but through the enormous extension of his range of experience, by the invention of instruments of precision, which serve as supplemental senses and supplemental limbs. The reciprocal action of these is finely described and illustrated. That chastened intellectual emotion to which I have referred in connection with Mr. Darwin is not absent in Mr. Spencer. His illustrations possess at times exceeding vividness and force; and from his style on such occasions it is to be inferred that the ganglia of this Apostle of the Understanding are sometimes the seat of a nascent poetic thrill.

It is a fact of supreme importance that actions the performance of which at first requires even painful effort and deliberation may by habit be rendered automatic. Witness the slow learning of its letters by a child, and the subsequent facility of reading in a man, when each group of letters which forms a word is instantly, and without effort, fused to a single perception. Instance the billiard-player, whose muscles of hand and eye, when he reaches the perfection of his art, are unconsciously coördinated. Instance the musician, who, by practice, is enabled to fuse a multitude of arrangements, auditory, tactual, and muscular, into a process of automatic manipulation. Combining such facts with the doctrine of hereditary transmission, we reach a theory of instinct. A chick, after coming out of the egg, balances itself correctly, runs about, picks up food, thus showing that it possesses a power of directing its movements to definite ends. How did the chick learn this very complex coördination of eye, muscles, and beak? It has not been individually taught; its personal experience is *nil*; but it has the benefit of ancestral ex-

perience. In its inherited organization are registered all the powers which it displays at birth. So also as regards the instinct of the hive-bee, already referred to. The distance at which the insects stand apart when they sweep their hemispheres and build their cells is "organically remembered."

Man also carries with him the physical texture of his ancestry, as well as the inherited intellect bound up with it. The defects of intelligence during infancy and youth are probably less due to a lack of individual experience than to the fact that in early life the cerebral organization is still incomplete. The period necessary for completion varies with the race and with the individual. As a round shot outstrips a rifled one on quitting the muzzle of the gun, so the lower race in childhood may outstrip the higher. But the higher eventually overtakes the lower, and surpasses it in range. As regards individuals, we do not always find the precocity of youth prolonged to mental power in maturity; while the dullness of boyhood is sometimes strikingly contrasted with the intellectual energy of after-years. Newton, when a boy, was weakly, and he showed no particular aptitude at school; but in his eighteenth year he went to Cambridge, and soon afterward astonished his teachers by his power of dealing with geometrical problems. During his quiet youth his brain was slowly preparing itself to be the organ of those energies which he subsequently displayed.

By myriad blows (to use a Lucretian phrase) the image and superscription of the external world are stamped as states of consciousness upon the organism, the depth of the impression depending upon the number of the blows. When two or more phenomena occur in the environment invariably together, they are stamped to the same depth or to the same relief, and indissolubly connected. And here we come to the threshold of a great question. Seeing

that he could in no way rid himself of the consciousness of Space and Time, Kant assumed them to be necessary "forms of intuition," the moulds and shapes into which our intuitions are thrown, belonging to ourselves solely, and without objective existence. With unexpected power and success Mr. Spencer brings the hereditary experience theory, as he holds it, to bear upon this question. "If there exist certain external relations which are experienced by all organisms at all instants of their waking lives—relations which are absolutely constant and universal—there will be established answering internal relations that are absolutely constant and universal. Such relations we have in those of Space and Time. As the substrata of all other relations of the Non-Ego, they must be responded to by conceptions that are the substrata of all other relations in the Ego. Being the constant and infinitely-repeated elements of thought, they must become the automatic elements of thought—the elements of thought which it is impossible to get rid of—the 'forms of intuition.'"

Throughout this application and extension of the "Law of Inseparable Association," Mr. Spencer stands upon his own ground, invoking, instead of the experiences of the individual, the registered experiences of the race. His overthrow of the restriction of experience to the individual is, I think, complete. That restriction ignores the power of organizing experience furnished at the outset to each individual; it ignores the different degrees of this power possessed by different races and by different individuals of the same race. Were there not in the human brain a potency antecedent to all experience, a dog or cat ought to be as capable of education as a man. These predetermined internal relations are independent of the experiences of the individual. The human brain is the "organized register of infinitely numerous experiences received during the evolution of life, or rather during the evolution of that series of

organisms through which the human organism has been reached. The effects of the most uniform and frequent of these experiences have been successively bequeathed, principal and interest, and have slowly mounted to that high intelligence which lies latent in the brain of the infant. Thus it happens that the European inherits from twenty to thirty cubic inches more of brain than the Papuan. Thus it happens that faculties, as of music, which scarcely exist in some inferior races, become congenital in superior ones. Thus it happens that out of savages unable to count up to the number of their fingers, and speaking a language containing only nouns and verbs, arise at length our Newtons and Shakespeares."

At the outset of this Address it was stated that physical theories which lie beyond experience are derived by a process of abstraction from experience. It is instructive to note from this point of view the successive introduction of new conceptions. The idea of the attraction of gravitation was preceded by the observation of the attraction of iron by a magnet, and of light bodies by rubbed amber. The polarity of magnetism and electricity appealed to the senses, and thus became the substratum of the conception that atoms and molecules are endowed with definite, attractive, and repellent poles, by the play of which definite forms of crystalline architecture are produced. Thus molecular force becomes *structural*. It requires no great boldness of thought to extend its play into organic Nature, and to recognize in molecular force the agency by which both plants and animals are built up. In this way out of experience arise conceptions which are wholly ultra-experiential. None of the atomists of antiquity had any notion of this play of molecular polar force, but they had experience of gravity as manifested by falling bodies. Abstracting from this, they permitted their atoms to fall eter-

nally through empty space. Democritus assumed that the larger atoms moved more rapidly than the smaller ones, which they therefore could overtake, and with which they could combine. Epicurus, holding that empty space could offer no resistance to motion, ascribed to all the atoms the same velocity; but he seems to have overlooked the consequence that under such circumstances the atoms could never combine. Lucretius cut the knot by quitting the domain of physics altogether, and causing the atoms to move together by a kind of volition.

Was the instinct utterly at fault which caused Lucretius thus to swerve from his own principles? Diminishing gradually the number of progenitors, Mr. Darwin comes at length to one "primordial form;" but he does not say, as far as I remember, how he supposes this form to have been introduced. He quotes with satisfaction the words of a celebrated author and divine who had "gradually learned to see that it is just as noble a conception of the Deity to believe He created a few original forms, capable of self-development into other and needful forms, as to believe that He required a fresh act of creation to supply the voids caused by the action of his laws." What Mr. Darwin thinks of this view of the introduction of life I do not know. But the anthropomorphism, which it seemed his object to set aside, is as firmly associated with the creation of a few forms as with the creation of a multitude. We need clearness and thoroughness here. Two courses, and two only, are possible. Either let us open our doors freely to the conception of creative acts, or, abandoning them, let us radically change our notions of matter. If we look at matter as pictured by Democritus, and as defined for generations in our scientific text-books, the notion of any form of life whatever coming out of it is utterly unimaginable. The argument placed in the mouth of Bishop Butler suffices, in my opinion, to crush all such materialism as this.

But those who framed these definitions of matter were not biologists, but mathematicians, whose labors referred only to such accidents and properties of matter as could be expressed in their formulæ. The very intentness with which they pursued mechanical science turned their thoughts aside from the science of life. May not their imperfect definitions be the real cause of our present dread? Let us reverently, but honestly, look the question in the face. Divorced from matter, where is life to be found? Whatever our *faith* may say, our *knowledge* shows them to be indissolubly joined. Every meal we eat, and every cup we drink, illustrates the mysterious control of mind by matter.

Trace the line of life backward, and see it approaching more and more to what we call the purely physical condition. We come at length to those organisms which I have compared to drops of oil suspended in a mixture of alcohol-and-water. We reach the *protogenes* of Hæckel, in which we have "a type distinguishable from a fragment of albumen only by its finely-granular character." Can we pause here? We break a magnet and find two poles in each of its fragments. We continue the process of breaking, but, however small the parts, each carries with it, though enfeebled, the polarity of the whole. And, when we can break no longer, we prolong the intellectual vision to the polar molecules. Are we not urged to do *something* similar in the case of life? Is there not a temptation to close to some extent with Lucretius, when he affirms that "Nature is seen to do all things spontaneously of herself, without the meddling of the gods?" or with Bruno, when he declares that Matter is not "that mere empty capacity which philosophers have pictured her to be, but the universal mother who brings forth all things as the fruit of her own womb?" Believing as I do in the continuity of Nature, I cannot stop abruptly where our microscopes cease to

be of use. Here the vision of the mind authoritatively supplements the vision of the eye. By an intellectual necessity I cross the boundary of the experimental evidence, and discern in that matter which we, in our ignorance of its latent powers, and notwithstanding our professed reverence for its creator, have hitherto covered with opprobrium, the promise and potency of all terrestrial life.

If you ask me whether there exists the least evidence to prove that any form of life can be developed out of matter, without demonstrable antecedent life, my reply is that evidence considered perfectly conclusive by many has been adduced; and that were some of us who have pondered this question to follow a very common example, and accept testimony because it falls in with our belief, we also should eagerly close with the evidence referred to. But there is in the true man of science a wish stronger than the wish to have his beliefs upheld; namely, the wish to have them true. And this stronger wish causes him to reject the most plausible support if he has reason to suspect that it is vitiated by error. Those to whom I refer as having studied this question, believing the evidence offered in favor of "spontaneous generation" to be thus vitiated, cannot accept it. They know full well that the chemist now prepares from inorganic matter a vast array of substances which were some time ago regarded as the sole products of vitality. They are intimately acquainted with the structural power of matter as evidenced in the phenomena of crystallization. They can justify scientifically their *belief* in its potency, under the proper conditions, to produce organisms. But in reply to your question they will frankly admit their inability to point to any satisfactory experimental proof that life can be developed save from demonstrable antecedent life. As already indicated, they draw the line from the highest organisms through lower ones down to the lowest, and it is the prolongation of this line by the intellect

beyond the range of the senses that leads them to the conclusion which Bruno so boldly enunciated.¹

The "materialism" here professed may be vastly different from what you suppose, and I therefore crave your gracious patience to the end. "The question of an external world," says Mr. J. S. Mill, "is the great battle-ground of metaphysics."² Mr. Mill himself reduces external phenomena to "possibilities of sensation." Kant, as we have seen, made time and space "forms" of our own intuitions. Fichte, having first by the inexorable logic of his understanding proved himself to be a mere link in that chain of eternal causation which holds so rigidly in Nature, violently broke the chain by making Nature, and all that it inherits, an apparition of his own mind.³ And it is by no means easy to combat such notions. For when I say I see you, and that I have not the least doubt about it, the reply is that what I am really conscious of is an affection of my own retina. And if I urge that I can check my sight of you by touching you, the retort would be that I am equally transgressing the limits of fact; for what I am really conscious of is, not that you are there, but that the nerves of my hand have undergone a change. All we hear, and see, and touch, and taste, and smell, are, it would be urged, mere variations of our own condition, beyond which, even to the extent of a hair's breadth, we cannot go. That any thing answering to our impressions exists outside of ourselves is not a *fact*, but an *inference*, to which all validity would be denied by an idealist like Berkeley, or by a skeptic like Hume. Mr. Spencer takes another line. With him, as with the uneducated man, there is no doubt or question as to the existence of an external world. But he differs from the uneducated, who think that the world really *is* what con-

¹ Bruno was a "pantheist," not an "atheist" or a "materialist."

² "Examination of Hamilton," p. 154.

³ "Bestimmung des Menschen."

sciousness represents it to be. Our states of consciousness are mere *symbols* of an outside entity which produces them and determines the order of their succession, but the real nature of which we can never know.¹ In fact, the whole process of evolution is the manifestation of a power absolutely inscrutable to the intellect of man. As little in our day as in the days of Job can man by searching find this power out. Considered fundamentally, then, it is by the operation of an insoluble mystery that life on earth is evolved, species differentiated, and mind unfolded from their prepotent elements in the immeasurable past. There is, you will observe, no very rank materialism here.

The strength of the doctrine of evolution consists, not in an experimental demonstration (for the subject is hardly accessible to this mode of proof), but in its general harmony with scientific thought. From contrast, moreover, it derives enormous relative strength. On the one side we have a theory (if it could with any propriety be so called) derived, as were the theories referred to at the beginning of this Address, not from the study of Nature, but from the observation of men—a theory which converts the power whose garment is seen in the visible universe into an artifi-

¹ In a paper, at once popular and profound, entitled "Recent Progress in the Theory of Vision," contained in the volume of lectures by Helmholtz, published by Longmans, this symbolism of our states of consciousness is also dwelt upon. The impressions of sense are the mere *signs* of external things. In this paper Helmholtz contends strongly against the view that the consciousness of space is inborn; and he evidently doubts the power of the chick to pick up grains of corn without preliminary lessons. On this point, he says, further experiments are needed. Such experiments have been since made by Mr. Spalding, aided, I believe, in some of his observations, by the accomplished and deeply-lamented Lady Amberly; and they seem to prove conclusively that the chick does not need a single moment's tuition to enable it to stand, run, govern the muscles of its eyes, and to peck. Helmholtz, however, is contending against the notion of preëstablished harmony; and I am not aware of his views as to the organization of experiences of race or breed.

cer, fashioned after the human model, and acting by broken efforts as man is seen to act. On the other side we have the conception that all we see around us, and all we feel within us—the phenomena of physical Nature as well as those of the human mind—have their unsearchable roots in a cosmical life, if I dare apply the term, an infinitesimal span of which is offered to the investigation of man. And even this span is only knowable in part. We can trace the development of a nervous system, and correlate with it the parallel phenomena of sensation and thought. We see with undoubting certainty that they go hand-in-hand. But we try to soar in a vacuum the moment we seek to comprehend the connection between them. An Archimedean fulcrum is here required which the human mind cannot command; and the effort to solve the problem, to borrow a comparison from an illustrious friend of mine, is like the effort of a man trying to lift himself by his own waistband. All that has been here said is to be taken in connection with this fundamental truth. When “nascent senses” are spoken of, when “the differentiation of a tissue at first vaguely sensitive all over” is spoken of, and when these processes are associated with “the modification of an organism by its environment,” the same parallelism, without contact, or even approach to contact, is implied. Man the *object* is separated by an impassable gulf from man the *subject*. There is no motor energy in intellect to carry it without logical rupture from the one to the other.

Further, the doctrine of evolution derives man in his totality from the interaction of organism and environment through countless ages past. The human understanding, for example—that faculty which Mr. Spencer has turned so skillfully round upon its own antecedents—is itself a result of the play between organism and environment through cosmic ranges of time. Never surely did prescription plead so irresistible a claim. But then it comes to pass

that, over and above his understanding, there are many other things appertaining to man whose prescriptive rights are quite as strong as those of the understanding itself. It is a result, for example, of the play of organism and environment that sugar is sweet, and that aloes are bitter, that the smell of henbane differs from the perfume of a rose. Such facts of consciousness (for which, by-the-way, no adequate reason has yet been rendered) are quite as old as the understanding; and many other things can boast an equally ancient origin. Mr. Spencer at one place refers to that most powerful of passions—the amatory passion—as one which, when it first occurs, is antecedent to all relative experience whatever; and we may pass its claim as being at least as ancient and valid as that of the understanding. Then there are some things woven into the texture of man, as the feeling of awe, reverence, wonder—and not alone the sexual love just referred to, but the love of the beautiful, physical, and moral, in Nature, poetry, and art. There is also that deep-set feeling which, since the earliest dawn of history, and probably for ages prior to all history, incorporated itself in the religions of the world. You who have escaped from these religions into the high-and-dry light of the intellect may deride them; but in so doing you deride accidents of form merely, and fail to touch the immovable basis of the religious sentiment in the nature of man. To yield this sentiment reasonable satisfaction is the problem of problems at the present hour. And grotesque in relation to scientific culture as many of the religions of the world have been and are—dangerous, nay, destructive, to the dearest privileges of freemen as some of them undoubtedly have been, and would, if they could, be again—it will be wise to recognize them as the forms of a force, mischievous, if permitted to intrude on the region of *knowledge*, over which it holds no command, but capable of being guided to noble

issues in the region of *emotion*, which is its proper and elevated sphere.

All religious theories, schemes, and systems, which embrace notions of cosmogony, or which otherwise reach into the domain of science, must, *in so far as they do this*, submit to the control of science, and relinquish all thought of controlling it. Acting otherwise proved disastrous in the past, and it is simply fatuous to-day. Every system which would escape the fate of an organism too rigid to adjust itself to its environment must be plastic to the extent that the growth of knowledge demands. When this truth has been thoroughly taken in, rigidity will be relaxed, exclusiveness diminished, things now deemed essential will be dropped, and elements now rejected will be assimilated. The lifting of the life is the essential point; and as long as dogmatism, fanaticism, and intolerance, are kept out, various modes of leverage may be employed to raise life to a higher level. Science itself not unfrequently derives motive power from an ultra-scientific source. Whewell speaks of enthusiasm of temper as a hinderance to science; but he means the enthusiasm of weak heads. There is a strong and resolute enthusiasm in which science finds an ally; and it is to the lowering of this fire, rather than to the diminution of intellectual insight, that the lessening productiveness of men of science in their mature years is to be ascribed. Mr. Buckle sought to detach intellectual achievement from moral force. He gravely erred; for, without moral force to whip it into action, the achievements of the intellect would be poor indeed.

It has been said that science divorces itself from literature; but the statement, like so many others, arises from lack of knowledge. A glance at the less technical writings of its leaders—of its Helmholtz, its Huxley, and its Du Bois-Reymond—would show what breadth of literary cult-

ure they command. Where among modern writers can you find their superiors in clearness and vigor of literary style? Science desires not isolation, but freely combines with every effort toward the bettering of man's estate. Single-handed, and supported not by outward sympathy, but by inward force, it has built at least one great wing of the many-mansioned home which man in his totality demands. And if rough walls and protruding rafter-ends indicate that on one side the edifice is still incomplete, it is only by wise combination of the parts required with those already irrevocably built that we can hope for completeness. There is no necessary incongruity between what has been accomplished and what remains to be done. The moral glow of Socrates, which we all feel by ignition, has in it nothing incompatible with the physics of Anaxagoras which he so much scorned, but which he would hardly scorn to-day.

And here I am reminded of one among us, hoary, but still strong, whose prophet-voice some thirty years ago, far more than any other of this age, unlocked whatever of life and nobleness lay latent in its most gifted minds—one fit to stand beside Socrates or the Maccabean Eleazar, and to dare and suffer all that they suffered and dared—fit, as he once said of Fichte, “to have been the teacher of the Stoa, and to have discoursed of beauty and virtue in the groves of Academe.” With a capacity to grasp physical principles which his friend Goethe did not possess, and which even total lack of exercise has not been able to reduce to atrophy, it is the world's loss that he, in the vigor of his years, did not open his mind and sympathies to science, and make its conclusions a portion of his message to mankind. Marvelously endowed as he was—equally equipped on the side of the heart and of the understanding—he might have done much toward teaching us how to recon-

cile the claims of both, and to enable them in coming times to dwell together in unity of spirit and in the bond of peace.

And now the end is come. With more time, or greater strength and knowledge, what has been here said might have been better said, while worthy matters here omitted might have received fit expression. But there would have been no material deviation from the views set forth. As regards myself, they are not the growth of a day; and as regards you, I thought you ought to know the environment which, with or without your consent, is rapidly surrounding you, and in relation to which some adjustment on your part may be necessary. A hint of Hamlet's, however, teaches us all how the troubles of common life may be ended; and it is perfectly possible for you and me to purchase intellectual peace at the price of intellectual death. The world is not without refuges of this description; nor is it wanting in persons who seek their shelter and try to persuade others to do the same. The unstable and the weak will yield to this persuasion, and they to whom repose is sweeter than the truth. But I would exhort you to refuse the offered shelter and to scorn the base repose—to accept, if the choice be forced upon you, commotion before stagnation, the leap of the torrent before the stillness of the swamp.

In the course of this address I have touched on debatable questions and led you over what will be deemed dangerous ground—and this partly with the view of telling you that as regards these questions science claims unrestricted right to search. It is not to the point to say that the views of Lucretius and Bruno, of Darwin and Spencer, may be wrong. Here I should agree with you, deeming it indeed certain that these views will undergo modification. But the point is, that, whether right or wrong, we ask the

freedom to discuss them. For science, however, no exclusive claim is here made; you are not urged to erect it into an idol. The inexorable advance of man's understanding in the path of knowledge, and those unquenchable claims of his moral and emotional nature which the understanding can never satisfy, are here equally set forth. The world embraces not only a Newton, but a Shakespeare—not only a Boyle, but a Raphael—not only a Kant, but a Beethoven—not only a Darwin, but a Carlyle. Not in each of these, but in all, is human nature whole. They are not opposed, but supplementary—not mutually exclusive, but reconcilable. And if, unsatisfied with them all, the human mind, with the yearning of a pilgrim for his distant home, will turn to the mystery from which it has emerged, seeking so to fashion it as to give unity to thought and faith; so long as this is done, not only without intolerance or bigotry of any kind, but with the enlightened recognition that ultimate fixity of conception is here unattainable, and that each succeeding age must be held free to fashion the mystery in accordance with its own needs—then, casting aside all the restrictions of materialism, I would affirm this to be a field for the noblest exercise of what, in contrast with the *knowing* faculties, may be called the *creative* faculties of man.

“Fill thy heart with it,” said Goethe, “and then name it as thou wilt.” Goethe himself did this in untranslatable language.¹ Wordsworth did it in words known to all Englishmen, and which may be regarded as a forecast and religious vitalization of the latest and deepest scientific truth:

“For I have learned
To look on Nature; not as in the hour
Of thoughtless youth; but hearing oftentimes
The still, sad music of humanity,

¹ Proœmium to “Gott und Welt.”

Nor harsh nor grating, though of ample power
To chasten and subdue. *And I have felt*
A presence that disturbs me with the joy
Of elevated thoughts ; a sense sublime
Of something far more deeply interfused,
Whose dwelling is the light of setting suns,
And the round ocean, and the living air,
And the blue sky, and in the mind of man :
A motion and a spirit, that impels
All thinking things, all objects of all thought,
*And rolls through all things."*¹

¹ "Tintern Abbey."

APPENDIX.

I.

*EXTRACT FROM THE LECTURE DELIVERED IN
MANCHESTER, OCTOBER 28, 1874.*

LOOKING at these beautiful edifices and their internal structure, the pondering mind has submitted to it the question, How have these crystals been built up? What is the origin of this crystalline architecture? Without crossing the boundary of experience, we can make no attempt to answer this question. We have obtained clear conceptions of polar force; we know that polar force may be resident in the molecules or smallest particles of matter—we know that by the play of this force structural arrangement is possible. What, in relation to our present question, is the natural action of a mind furnished with this knowledge? Why, it is compelled by its bias toward unity of principle to transcend experience, and endow the atoms and molecules of which these crystals are built with definite poles, whence issue attractions and repulsions for other poles. In virtue of this attraction and repulsion some poles are drawn together, some retreat from each other; atom is thus added to atom, and molecule to molecule, not boisterously or fortuitously, but silently and symmetrically, and in accordance with laws more rigid than those which guide a human builder when he places his bricks and stones to-

gether. From this play of invisible particles we see finally growing up before our eyes these exquisite structures, to which we give the name of crystals.

In the specimens hitherto placed before you the work of the atomic architect has been completed ; but you shall see him at work. In the first place, however, I will take one of his most familiar edifices, and try to pull it to pieces before your eyes. For this purpose I choose ordinary ice, which is our commonest crystalline body. The agent to be employed in taking down the molecules of the ice is a beam of heat. Sent skillfully through the crystal, the beam selects certain points for attack ; round about those points it works silently, taking down the crystalline edifice, and reducing to the freedom of liquidity molecules which had been previously locked in a firm, solid embrace. The liquefied spaces are rendered visible by strong illumination, and throwing their magnified images on a screen. Starting from numerous points in the ice we have expanding flowers, each with six petals, growing larger and larger, and assuming, as they do so, beautifully crimped borders ; showing, if I might use such terms, the pains, and skill, and exquisite sense of the beautiful, displayed by Nature in the formation of a common block of ice.

Here we have a process of demolition, which, however, clearly reveals the reverse process of erection. I wish, however, to show you the molecules in the act of following their architectural instincts, and building themselves together. You know how alum, and nitre, and sugar crystals, are formed. The substance to be crystallized is dissolved in a liquid, and the liquid is permitted to evaporate. The solution soon becomes supersaturated, for none of the solid is carried away by evaporation ; and then the molecules, no longer able to enjoy the freedom of liquidity, close together and form crystals. My object now is to make this process rapid enough to enable you to see it,

and still not too rapid to be followed by the eye. For this purpose a powerful solar microscope and an intense source of light are needed. They are both here. Pouring over a clean plate of glass a solution of sal-ammonia, and placing the glass on its edge, the excess of the liquid flows away,*but a film clings to the glass. The beam employed to illuminate this film hastens its evaporation, and brings it rapidly into a state of supersaturation; and now you see the orderly progress of the crystallization over the entire screen. You may produce something similar to this if you breathe upon the frost-ferns which overspread your window-panes in the winter, and permit the liquid to recrystallize. It runs, as if alive, into the most beautiful forms.

In this case the crystallizing force is hampered by the adhesion of the liquid to the glass; nevertheless, the play of power is strikingly beautiful. In the next example our liquid will not be so much troubled by its adhesion, for we shall liberate our atoms at a distance from the surface of the glass. Sending an electric current through water, we decompose the liquid, and the bubbles of the constituent gases rise before your eyes. Sending the same current through a solution of acetate of lead, the lead is liberated, and its free atoms build themselves together to crystals of marvelous beauty. They grow before you like sprouting ferns, exhibiting forms as wonderful as if they had been produced by the play of vitality itself. I have seen these things hundreds of times, but I never look at them without wonder. And, if you allow me a moment's diversion, I would say that I have stood in the spring-time and looked upon the sprouting foliage, the grass, and the flowers, and the general joy of opening life; and in my ignorance of it all I have asked myself whether there is no power, being, or thing, in the universe whose knowledge of that of which I am so ignorant is greater than mine. I

have asked myself, Can it be possible that man's knowledge is the greatest knowledge—that man's life is the highest life? My friends, the profession of that atheism with which I am sometimes so lightly charged would, in my case, be an impossible answer to this question: only slightly preferable to that fierce and distorted theism which I have had lately reason to know still reigns rampant in some minds as the survival of a more ferocious age.

Everywhere throughout our planet we notice this tendency of the ultimate particles of matter to run into symmetric forms. The very molecules seem instinct with a desire for union and growth. How far does this play of molecular power depend? Does it give us the movement of the sap in trees? Assuredly it does. Does it give us, in ourselves, the warmth of the body and the circulation of the blood, and all that thereon depend? We are here upon the edge of a battle-field which I do not intend to enter to-night; from which, indeed, I have just escaped bespattered and begrimed, but without much loss of heart or hope. It only remains for me to briefly indicate the positions of the opposing hosts. From the processes of crystallization which you have just seen, you pass by almost imperceptible gradations to the lowest vegetable organisms, and from these through higher ones up to the highest. The opposition to which I have referred is: that whereas one class of thinkers regard the observed advance from the crystalline through the vegetable and animal worlds as an unbroken process of natural growth, thus grasping the world, inorganic and organic, as one vast and indissolubly connected whole, the other class suppose that the passage from the inorganic to the organic required a distinct creative act, and that to produce the different forms, both in the world of fossils and in the world of living things, creative acts were also needed. If you look abroad you will find men of equal honesty, earnestness,

and intelligence, taking opposite sides as regards this question. Which are right and which are wrong is, I submit, a problem for reasonable and grave discussion, and not for anger and hard names. The question cannot be solved—it cannot even be shelved—by angry abuse. Nor can it be solved by appeals to hopes and fears—to what we lose or gain here or hereafter by joining the one or the other side. The bribe of eternity itself, were it possible to offer it, could not prevent the human mind from closing with the truth. Skepticism is at the root of our fears. I mean that skepticism which holds that human nature, being essentially corrupt and vile, will go to ruin if the props of our conventional theology are not maintained. When I see an able, and in many respects courageous man, running to and fro upon the earth, and wringing his hands over the threatened loss of his ideals, I feel disposed to exhort him to cast out this skepticism, and to believe undoubtedly that in the mind of man we have the substratum of all ideals. We have there capacity which will as surely and infallibly respond to the utterances of a really living soul as string responds to string when the proper note is sounded. It is the function of the teacher of humanity to call forth this resonance of the human heart, and the possibility of doing so depends wholly and solely upon the fact that the conditions for its production are already there.

II.

SCOPE AND LIMIT OF SCIENTIFIC
MATERIALISM.

AN ADDRESS.

DELIVERED IN THE MATHEMATICAL AND PHYSICAL SECTION OF
THE BRITISH ASSOCIATION IN NORWICH.

August 19, 1868.

“As I proceeded I found my philosopher altogether forsaking mind or any other principle of order, and having recourse to air and ether, and water, and other eccentricities. I might compare him to a person who began by maintaining generally that mind is the cause of the actions of Socrates, but who, when he endeavored to explain the cause of my several actions in detail, went on to show that I sit here because my body is made up of bones and muscles; and the bones he would say are hard and have ligaments which divide them, and the muscles are elastic, and they cover the bones, which have also a covering or environment of flesh and skin which contains them; and as the bones are lifted at their joints by the contraction or relaxation of the muscles, I am able to bend my limbs, and this is why I am sitting here in a curved posture; that is what he would say, and he would have a similar explanation of my talking to you, which he would attribute to sound, and air, and hearing, and he would assign ten thousand other causes of the same sort, forgetting to mention the true cause, which is that the Athenians have thought fit to condemn me, and accordingly I have thought it better and more right to remain here and undergo my sentence; for I am inclined to think that these muscles and bones of mine would have gone off to Megara or Bœotia—by the dog of Egypt they would, if they had been guided by their own idea of what was best, and if I had not chosen as the better and nobler part, instead of playing truant and running away, to undergo any punishment which the State inflicts.”—PLATO, *Jowett's Translation*.

II.

SCIENTIFIC MATERIALISM.

THE CELEBRATED FICHTE, in his lectures on the "Vocation of the Scholar," insisted on a culture which should not be one-sided, but all-sided. The scholar's intellect was to expand spherically and not in a single direction only. In one direction, however, Fichte required that the scholar should apply himself directly to Nature, become a creator of knowledge, and thus repay by original labors of his own the immense debt he owed to the labors of others. It was these which enabled him to supplement the knowledge derived from his own researches, so as to render his culture rounded and not one-sided.

As regards science Fichte's idea is to some extent illustrated by the constitution and the labors of the British Association. We have a body of men engaged in the pursuit of Natural Knowledge, but variously engaged. While sympathizing with each of its departments, and supplementing his culture by knowledge drawn from all of them, each student among us selects one subject for the exercise of his own original faculty—one line along which he may carry the light of his private intelligence a little way into the darkness by which all knowledge is surrounded. Thus, the geologist deals with the rocks; the biologist with the conditions and phenomena of life; the astronomer with stellar masses and motions; the mathematician with the relations of space and number; the

chemist pursues his atoms, while the physical investigator has his own large field in optical, thermal, electrical, acoustical, and other phenomena. The British Association then, as a whole, faces physical Nature on all sides and pushes knowledge centrifugally outward, the sum of its labors constituting what Fichte might call the *sphere* of natural knowledge. In the meetings of the Association it is found necessary to resolve this sphere into its component parts, which take concrete form under the respective letters of our Sections.

This is the Mathematical and Physical Section. Mathematics and physics have been long accustomed to coalesce. For, no matter how subtle a natural phenomenon may be, whether we observe it in the region of sense, or follow it into that of imagination, it is in the long-run reducible to mechanical laws. But the mechanical data once guessed or given, mathematics become all-powerful as an instrument of deduction. The command of geometry over the relations of space, the far-reaching power which organized symbolic reasoning confers, are potent both as means of physical discovery, and of reaping the entire fruits of discovery. Indeed, without mathematics, expressed or implied, our knowledge of physical science would be friable in the extreme.

Side by side with the mathematical method we have the method of experiment. Here, from a starting-point furnished by his own researches, or those of others, the investigator proceeds by combining intuition and verification. He ponders the knowledge he possesses and tries to push it further, he guesses and checks his guess, he conjectures and confirms or explodes his conjecture. These guesses and conjectures are by no means leaps in the dark; for knowledge once gained casts a faint light beyond its own immediate boundaries. There is no discovery so limited as not to illuminate something beyond itself. The force

of intellectual penetration into this penumbral region which surrounds actual knowledge is not, as some seem to think, dependent upon method, but upon the genius of the investigator. There is, however, no genius so gifted as not to need control and verification. The profoundest minds know best that Nature's ways are not at all times their ways, and that the brightest flashes in the world of thought are incomplete until they have been proved to have their counterparts in the world of fact. Thus the vocation of the true experimentalist may be defined as the continued exercise of spiritual insight, and its incessant correction and realization. His experiments constitute a body, of which his purified intuitions are, as it were, the soul.

Partly through methematical and partly through experimental research, physical science has of late years assumed a momentous position in the world. Both in a material and in an intellectual point of view it has produced, and it is destined to produce, immense changes—vast social ameliorations, and vast alterations in the popular conception of the origin, rule, and governance of natural things. By science, in the physical world, miracles are wrought, while philosophy is forsaking its ancient metaphysical channels and pursuing others which have been opened or indicated by scientific research. This must become more and more the case as philosophical writers become more deeply imbued with the methods of science, better acquainted with the facts which scientific men have won, and with the great theories which they have elaborated.

If you look at the face of a watch, you see the hour and minute hands, and possibly also a second-hand, moving over the graduated dial. Why do these hands move? and why are their relative motions such as they are observed to be? These questions cannot be answered without opening the watch, mastering its various parts, and ascertaining

their relationship to each other. When this is done, we find that the observed motion of the hands follows of necessity from the inner mechanism of the watch, when acted upon by the force invested in the spring.

The motion of the hands may be called a phenomenon of art, but the case is similar with the phenomena of Nature. These also have their inner mechanism, and their store of force to set that mechanism going. The ultimate problem of physical science is to reveal this mechanism, to discern this store, and to show that from the combined action of both the phenomena of which they constitute the basis must of necessity flow.

I thought an attempt to give you even a brief and sketchy illustration of the manner in which scientific thinkers regard this problem would not be uninteresting to you on the present occasion; more especially as it will give me occasion to say a word or two on the tendencies and limits of modern science; to point out the region which men of science claim as their own, and where it is mere waste of time to oppose their advance, and also to define, if possible, the bourne between this and that other region to which the questionings and yearnings of the scientific intellect are directed in vain.

But here your tolerance will be needed. It was the American Emerson, I think, who said that it is hardly possible to state any truth strongly without apparent injustice to some other truth. Truth is often of a dual character, taking the form of a magnet with two poles; and many of the differences which agitate the thinking part of mankind are to be traced to the exclusiveness with which partisan reasoners dwell upon one-half of the duality in forgetfulness of the other. The proper course appears to be to state both halves strongly, and allow each its fair share in the formation of the resultant conviction. But this waiting for the statement of the two sides of a question implies pa-

tience. It implies a resolution to suppress indignation if the statement of the one-half should clash with our convictions, and to repress equally undue elation if the half-statement should happen to chime in with our views. It implies a determination to wait calmly for the statement of the whole, before we pronounce judgment in the form of either acquiescence or dissent.

This premised, and, I trust, accepted, let us enter upon our task. There have been writers who affirmed that the pyramids of Egypt were the productions of Nature; and in his early youth Alexander von Humboldt wrote a learned essay with the express object of refuting this notion. We now regard the pyramids as the work of men's hands, aided probably by machinery of which no record remains. We picture to ourselves the swarming workers toiling at those vast erections, lifting the inert stones, and, guided by the volition, the skill, and possibly at times by the whip of the architect, placing them in their proper positions. The blocks in this case were moved and posited by a power external to themselves, and the final form of the pyramid expressed the thought of its human builder.

Let us pass from this illustration of constructive power to another of a different kind. When a solution of common salt is slowly evaporated, the water which holds the salt in solution disappears, but the salt itself remains behind. At a certain stage of concentration the salt can no longer retain the liquid form; its particles, or molecules, as they are called, begin to deposit themselves as minute solids, so minute, indeed, as to defy all microscopic power. As evaporation continues solidification goes on, and we finally obtain, through the clustering together of innumerable molecules, a finite crystalline mass of a definite form. What is this form? It sometimes seems a mimicry of the architecture of Egypt. We have little pyramids built by the salt, terrace above terrace from base to apex, forming a series of

steps resembling those up which the Egyptian traveller is dragged by his guides. The human mind is as little disposed to look unquestioning at these pyramidal salt-crystals as to look at the pyramids of Egypt without inquiring whence they came. How, then, are those salt-pyramids built up ?

Guided by analogy, you may, if you like, suppose that swarming among the constituent molecules of the salt, there is an invisible population, controlled and coerced by some invisible master, and placing the atomic blocks in their positions. This, however, is not the scientific idea, nor do I think your good sense will accept it as a likely one. The scientific idea is that the molecules act upon each other without the intervention of slave labor ; that they attract each other and repel each other at certain definite points, or poles, and in certain definite directions ; and that the pyramidal form is the result of this play of attraction and repulsion. While, then, the blocks of Egypt were laid down by a power external to themselves, these molecular blocks of salt are self-posed, being fixed in their places by the forces with which they act upon each other.

I take common salt as an illustration because it is so familiar to us all ; but any other crystalline substance would answer my purpose equally well. Everywhere, in fact, throughout inorganic Nature, we have this formative power, as Fichte would call it—this structural energy ready to come into play, and build the ultimate particles of matter into definite shapes. The ice of our winters and of our polar regions is its handywork, and so equally are the quartz, felspar, and mica of our rocks. Our chalk-beds are for the most part composed of minute shells, which are also the product of structural energy ; but, behind the shell, as a whole, lies a more remote and subtle formative act. These shells are built up of little crystals of calc-spar, and to form these crystals the structural force had to deal with the

intangible molecules of carbonate of lime. This tendency on the part of matter to organize itself, to grow into shape, to assume definite forms in obedience to the definite action of force, is, as I have said, all-pervading. It is in the ground on which you tread, in the water you drink, in the air you breathe. Incipient life, as it were, manifests itself throughout the whole of what we call inorganic Nature.

The forms of the minerals resulting from this play of polar forces are various, and exhibit different degrees of complexity. Men of science avail themselves of all possible means of exploring their molecular architecture. For this purpose they employ in turn as agents of exploration, light, heat, magnetism, electricity, and sound. Polarized light is especially useful and powerful here. A beam of such light, when sent in among the molecules of a crystal, is acted on by them, and from this action we infer with more or less of clearness the manner in which the molecules are arranged. That differences, for example, exist between the inner structure of rock-salt and crystallized sugar or sugar-candy, is thus strikingly revealed. These actions often display themselves in chromatic phenomena of great splendor, the play of molecular force being so regulated as to remove some of the colored constituents of white light, and to leave others with increased intensity behind.

And now let us pass from what we are accustomed to regard as a dead mineral to a living grain of corn. When *it* is examined by polarized light, chromatic phenomena similar to those noticed in crystals are observed. And why? Because the architecture of the grain resembles the architecture of the crystal. In the grain also the molecules are set in definite positions, and in accordance with their arrangement they act upon the light. But what has built together the molecules of the corn? I have already said regarding crystalline architecture that you may, if you please, consider the atoms and molecules to be placed in

position by a power external to themselves. The same hypothesis is open to you now. But if in the case of crystals you have rejected this notion of an external architect, I think you are bound to reject it now, and to conclude that the molecules of the corn are self-positd by the forces with which they act upon each other. It would be poor philosophy to invoke an external agent in the one case and to reject it in the other.

Instead of cutting our grain of corn into slices and subjecting it to the action of polarized light, let us place it in the earth and subject it to a certain degree of warmth. In other words, let the molecules, both of the corn and of the surrounding earth, be kept in that state of agitation which we call warmth. Under these circumstances, the grain and the substances which surround it interact, and a definite molecular architecture is the result. A bud is formed; this bud reaches the surface, where it is exposed to the sun's rays, which are also to be regarded as a kind of vibratory motion. And as the motion of common heat with which the grain and the substances surrounding it were first endowed, enabled the grain and these substances to exercise their attractions and repulsions, and thus to coalesce in definite forms, so the specific motion of the sun's rays now enables the green bud to feed upon the carbonic acid and the aqueous vapor of the air. The bud appropriates those constituents of both for which it has an elective attraction, and permits the other constituent to resume its place in the air. Thus the architecture is carried on. Forces are active at the root, forces are active in the blade, the matter of the earth and the matter of the atmosphere are drawn toward the root and blade, and the plant augments in size. We have in succession the bud, the stalk, the ear, the full corn in the ear; the cycle of molecular action being completed by the production of grains similar to that with which the process began.

Now there is nothing in this process which necessarily eludes the conceptive or imagining power of the purely human mind. An intellect the same in kind as our own would, if only sufficiently expanded, be able to follow the whole process from beginning to end. It would see every molecule placed in its position by the specific attractions and repulsions exerted between it and other molecules, the whole process and its consummation being an instance of the play of molecular force. Given the grain and its environment, the purely human intellect might, if sufficiently expanded, trace out *a priori* every step of the process of growth, and by the application of purely mechanical principles demonstrate that the cycle must end, as it is seen to end, in the reproduction of forms like that with which it began. A similar necessity rules here to that which rules the planets in their circuits round the sun.

You will notice that I am stating my truth strongly, as at the beginning we agreed it should be stated. But I must go still further, and affirm that in the eye of science *the animal body* is just as much the product of molecular force as the stalk and ear of corn, or as the crystal of salt or sugar. Many of the parts of the body are obviously mechanical. Take the human heart, for example, with its system of valves, or take the exquisite mechanism of the eye or hand. Animal heat, moreover, is the same in kind as the heat of a fire, being produced by the same chemical process. Animal motion, too, is as directly derived from the food of the animal, as the motion of Trevethyck's walking-engine from the fuel in its furnace. As regards matter, the animal body creates nothing; as regards force, it creates nothing. Which of you by taking thought can add one cubit to his stature? All that has been said, then, regarding the plant may be restated with regard to the animal. Every particle that enters into the composition of a muscle, a nerve, or a bone, has been placed in its position by mo-

lecular force. And unless the existence of law in these matters be denied, and the element of caprice introduced, we must conclude that, given the relation of any molecule of the body to its environment, its position in the body might be determined mathematically. Our difficulty is not with the *quality* of the problem, but with its *complexity*; and this difficulty might be met by the simple expansion of the faculties which we now possess. Given this expansion, with the necessary molecular data, and the chick might be deduced as rigorously and as logically from the egg as the existence of Neptune from the disturbances of Uranus, or as conical refraction from the undulatory theory of light.

You see I am not mincing matters, but avowing nakedly what many scientific thinkers more or less distinctly believe. The formation of a crystal, a plant, or an animal, is in their eyes a purely mechanical problem, which differs from the problems of ordinary mechanics in the smallness of the masses and the complexity of the processes involved. Here you have one half of our dual truth; let us now glance at the other half. Associated with this wonderful mechanism of the animal body we have phenomena no less certain than those of physics, but between which and the mechanism we discern no necessary connection. A man, for example, can say, *I feel, I think, I love*; but how does *consciousness* infuse itself into the problem? The human brain is said to be the organ of thought and feeling; when we are hurt the brain feels it, when we ponder it is the brain that thinks, when our passions or affections are excited it is through the instrumentality of the brain. Let us endeavor to be a little more precise here. I hardly imagine there exists a profound scientific thinker, who has reflected upon the subject, unwilling to admit the extreme probability of the hypothesis that, for every fact of consciousness, whether in the domain of sense, of thought, or of emotion,

a definite molecular condition of motion or structure is set up in the brain; or who would be disposed even to deny that if the motion or structure be induced by internal causes instead of external, the effect on consciousness will be the same? Let any nerve, for example, be thrown by morbid action into the precise state of motion which would be communicated to it by the pulses of a heated body, surely that nerve will declare itself hot—the mind will accept the subjective intimation exactly as if it were objective. The retina may be excited by purely mechanical means. A blow on the eye causes a luminous flash, and the mere pressure of the finger on the external ball produces a star of light, which Newton compared to the circles on a peacock's tail. Disease makes people see visions and dream dreams; but, in all such cases, could we examine the organs implicated, we should, on philosophical grounds, expect to find them in that precise molecular condition which the real objects, if present, would superinduce.

The relation of physics to consciousness being thus invariable, it follows that, given the state of the brain, the corresponding thought or feeling might be inferred; or given the thought or feeling, the corresponding state of the brain might be inferred. But how inferred? It would be at bottom not a case of logical inference at all, but of empirical association. You may reply that many of the inferences of science are of this character; the inference, for example, that an electric current of a given direction will deflect a magnetic needle in a definite way; but the cases differ in this, that the passage from the current to the needle, if not demonstrable, is thinkable, and that we entertain no doubt as to the final mechanical solution of the problem. But the passage from the physics of the brain to the corresponding facts of consciousness is unthinkable. Granted that a definite thought, and a definite molecular action in the brain occur simultaneously; we do not possess

the intellectual organ, nor apparently any rudiment of the organ, which would enable us to pass, by a process of reasoning, from the one to the other. They appear together, but we do not know why. Were our minds and senses so expanded, strengthened, and illuminated as to enable us to see and feel the very molecules of the brain; were we capable of following all their motions, all their groupings, all their electric discharges, if such there be; and were we intimately acquainted with the corresponding states of thought and feeling, we should be as far as ever from the solution of the problem, "How are these physical processes connected with the facts of consciousness?" The chasm between the two classes of phenomena would still remain intellectually impassable. Let the consciousness of *love*, for example, be associated with a right-handed spiral motion of the molecules of the brain, and the consciousness of *hate* with a left-handed spiral motion. We should then know when we love that the motion is in one direction, and when we hate that the motion is in the other; but the "WHY?" would remain as unanswerable as before.†

In affirming that the growth of the body is mechanical, and that thought, as exercised by us, has its correlative in the physics of the brain, I think the position of the "Materialist" is stated, as far as that position is a tenable one. I think the materialist will be able finally to maintain this position against all attacks; but I do not think, in the present condition of the human mind, that he can pass beyond this position. I do not think he is entitled to say that his molecular groupings and his molecular motions *explain* every thing. In reality, they explain nothing. The utmost he can affirm is the association of two classes of phenomena, of whose real bond of union he is in absolute ignorance. The problem of the connection of body and soul is as insoluble in its modern form as it was in the prescientific ages. Phosphorus is

known to enter into the composition of the human brain, and a trenchant German writer has exclaimed, "Ohne Phosphor, kein Gedanke." That may or may not be the case; but even if we knew it to be the case, the knowledge would not lighten our darkness. On both sides of the zone here assigned to the materialist he is equally helpless. If you ask him whence is this "Matter" of which we have been discoursing, who or what divided it into molecules, who or what impressed upon them this necessity of running into organic forms, he has no answer. Science is mute in reply to these questions. But if the materialist is confounded and science rendered dumb, who else is prepared with a solution? To whom has this arm of the Lord been revealed? Let us lower our heads and acknowledge our ignorance, priest and philosopher, one and all.

Perhaps the mystery may resolve itself into knowledge at some future day. The process of things upon this earth has been one of amelioration. It is a long way from the *Iguanodon* and his contemporaries to the President and members of the British Association. And whether we regard the improvement from the scientific or from the theological point of view, as the result of progressive development, or as the result of successive exhibitions of creative energy, neither view entitles us to assume that man's present faculties end the series—that the process of amelioration stops at him. A time may therefore come when this ultra-scientific region by which we are now enfolded may offer itself to terrestrial, if not to human investigation. Two-thirds of the rays emitted by the sun fail to arouse in the eye the sense of vision. The rays exist, but the visual organ requisite for their translation into light does not exist. And so from this region of darkness and mystery which surrounds us, rays may now be darting which require but the development of the proper intellectual organs to translate them into knowledge as far surpassing ours as ours surpasses

that of the wallowing reptiles which once held possession of this planet. Meanwhile the mystery is not without its uses. - It certainly may be made a power in the human soul; but it is a power which has feeling, not knowledge, for its base. It may be, and will be, and I hope is, turned to account, both in studying and strengthening the intellect, and in rescuing man from that littleness to which, in the struggle for existence, or for precedence in the world, he is continually prone.

THE END.

